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HOME TREATMENT
FOR
CATARRHS AND COLDS

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20 D. 37

HOME TREATMENT
FOR
CATARRHS AND COLDS
A HANDY GUIDE

FOR THE
PREVENTION, CARE AND TREATMENT OF CATARRHAL TROUBLES,
COLD IN THE HEAD, SORE THROAT, HAY FEVER,
HOARSENESS, EAR AFFECTIONS, ETC..

ADAPTED FOR

*Use in the Household, and for Vocalists, Clergymen, Lawyers,
Actors, Lecturers, etc.*

BY

LEONARD A. DESSAR, M.D.

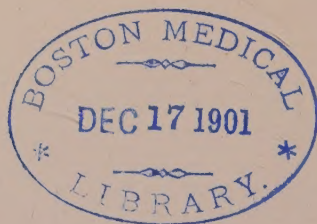
Visiting Laryngologist to St. Mark's Hospital, and to
Mt. Sinai Hospital Dispensary, etc., etc.

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PREFACE.

This small treatise has been written with a view of supplying the general reader with a trustworthy guide of instruction for the proper care, prevention and treatment of catarrhal troubles of the throat, nose and ears, and their complications. The prevalence of catarrhs in this country, owing to the variable atmospheric conditions, as well as the fact that many of these affections could be prevented, or at any rate greatly alleviated, if the laity were better informed as to the structure, functions, and the care of the throat, nose and ear, leads the author to believe that such a work will be generally welcomed in every household.

There are thousands of persons throughout this country who use the voice in their vocations, such as vocalists, clergymen, lawyers, actors, orators, and yet who are unfamiliar with the best means of keeping the vocal organs in a condition of health, or caring for them when diseased. A large amount of useless suffering

could be avoided if laymen possessed more exact information on these subjects. It is of the utmost importance to mothers, to be familiar with the proper care of the throat and nose of their offspring, for catarrh, if neglected in children, may become a prolific source of trouble in after life. These are only a few of the reasons which should induce laymen to consult this little book, and it is the sincere hope of the author that they may profit by the instruction set forth in its pages.

It is not our aim to bewilder the reader with a number of technical terms, but to afford him a clear insight into the affections of the nose, throat and ear, their prevention and treatment. The drugs and apparatuses advocated in this treatise can all be obtained with facility, and at a moderate cost, from the nearest pharmacist, and in their selection, care has been taken to mention only such as have proven of positive benefit in the author's experience.

We would urge most strongly that the purpose of this little book is not to supplant the physician, but to acquaint the reader with the principles of promoting the health of these organs.

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HOME TREATMENT

FOR

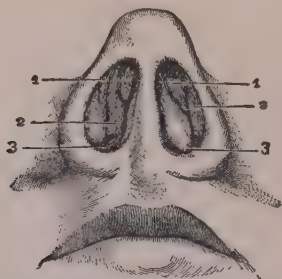
CATARRHS AND COLDS.

Structure and Function of the Nose.

The nose serves a double purpose. It is the organ of the sense of smell and assists in breathing and in the production of speech. It consists essentially of two parts. The external portion, the nose proper, which is composed of a framework of cartilage (gristle) and bone, lined on the inside by a membrane and divided by a partition in the center into two separate openings, the nostrils. Nature has fashioned the tip of the nose of cartilage, so that in falls it will bend without breaking, while the upper portion, which is rigid and bony, is protected from injury by the projecting margins of the eyebrows. The internal portion consists of two chambers opening into the upper throat behind. The membrane lining the roof of the cavities is supplied with the small branches of the nerve of smell, and it is here that odors are perceived. The floor and

middle part of these cavities serve as an avenue through which the air, warmed and freed of dust in its passage, passes into the throat and lungs ; for it must be borne in mind that the nose and wind-pipe form one canal. Situated at the sides of these cavities are three projecting bony ledges arranged one above the other, and covered with a thick velvety membrane, which in catarrhs swells up like a moistened sponge, closes the nasal passages, and thereby prevents air from passing through them.

FIG. 1.



Interior of the Nose. 1 and 2, showing spongy swellings in catarrh ; 3, floor of the nostrils.

As already mentioned, amongst other functions, the nose serves to warm the air and filter it of dust and other impurities, and it will therefore be seen that obstruction leads to the direct introduction of cold and impure air through the mouth into the lungs, thereby causing bronchitis and even more serious

lung troubles. The membrane lining the interior of the nose discharges constantly a certain amount of mucous which serves to lubricate it, and also imparts moisture to the air passing through the nasal chambers. In the production of the voice, the nose also plays an important part and helps to give pitch and tone to the sounds.

Acute Catarrh of the Nose.

(COLD IN THE HEAD.)

The word catarrh, which is derived from two Greek words meaning to flow down, is nowadays applied to an inflammation of the membrane lining the nose. Ancient physicians regarded the discharge from the nose in this affection as coming from the brain, and thought it of the nature of a brain purge. Schneider, in a work published in 1660, showed, however, that there was no communication between the brain and nose, and that the fluid was derived from the blood-vessels and oozed through the mucous membrane. Of all the nasal troubles acute cold in the head is, perhaps, of the most frequent occurrence. As its name indicates, it results most commonly from exposure to cold, such as wetting any part of the body, a cold draught upon the neck or back, or it may be due to the inhalation of irritant gases,

dust or the pollen of certain plants, the latter producing hay fever which will be discussed further on. In nervous persons great heat sometimes causes catarrh, or it may develop without apparent cause. Some individuals are more susceptible to cold in the head than others. Young persons who suffer from scrofula or other debilitating diseases are most apt to be attacked, although no age is exempt. It is still a much debated question whether acute catarrh is infectious, as whole communities are occasionally attacked at the same time, but even if this should be decided in the affirmative, the instances where the disease is directly contracted by one person from another are very rare.

Symptoms.—The commencement of acute cold in the head varies according to the cause and the constitution of the person attacked. Frequently a feeling of lassitude is experienced for some time before the onset of the attack. The disease is usually ushered in by a feeling of rawness and soreness in the nostrils, and sometimes by paroxysms of sneezing. These symptoms are rapidly followed by an increased discharge of thin irritating fluid from the nose, which soon causes a soreness and inflammation of the skin beneath the nostrils. There is slight fever and difficulty of breathing through the nose owing to the

obstruction by the swollen mucous membrane and spongy structures. First one nostril stops up and then the other. The obstruction to nasal breathing may disappear temporarily if the patient attempts to clear the nose by sneezing or coughing, or in consequence of excitement or shock. Headache is frequently present, especially a feeling of pain and fullness in the forehead over the eyes, and also pains in the muscles and joints. The discharge which is at first thin, becomes later thick and yellowish. Ordinarily acute cold in the head lasts but a few days, if proper care is exercised; but if neglected it may last much longer and pass into chronic catarrh.

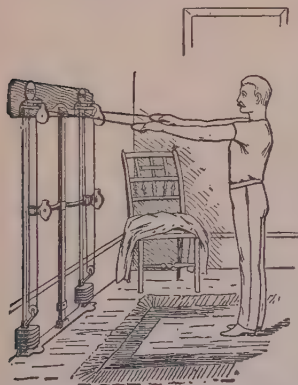
Treatment.—PREVENTION.—All sufferers from this prevalent trouble should observe certain precautions. Out-door exercise, such as walking and horseback riding, should be taken regularly, but not overdone. A cold sponge or full bath followed by brisk rubbing with a Turkish towel, hardens the system and lessens the susceptibility to taking cold. This should be employed early in the morning, and in the following manner: The water should be luke-warm on entering the bath and gradually cooled down by addition of cold water. Strong, hearty persons, under forty years of age, who are accustomed from childhood to cold baths, may not, however, require this gradual

cooling process, and may at once enter the cold bath. The bath should last from three to five minutes, according to the constitution of the patient and the intensity with which the cold acts upon the system. If the shock is too great on entering the cold bath, warm water should be added. The patient should accustom himself to cold baths, for even if at the beginning the shock is great, it gradually becomes less, and after a while these baths become a source of pleasure instead of annoyance. The addition of sea-salt, such as Ditman's, half a pound to one pound for each bath, will increase its stimulating properties. Bathing should always be followed by friction with a rough towel, either by the patient himself or an attendant, and, if possible, by mild dumb-bell or chest weight-exercise. So great is the importance of the cold bath in the prevention of catarrhal troubles that children should be accustomed to it from an early period of life, in connection with systematic gymnastic exercises. During an attack of acute catarrh these baths should not be used, but they should be promptly resorted to as soon as it is over. At the onset of the attack a Turkish bath may be taken with advantage, but care must be exercised not to go out too soon after the bath. The too frequent employment of the Turkish bath, however, tends to produce debility, and

one bath every week or two is sufficient even for those habituated to it.

To those subject to colds in the head the selection of proper clothing is very important. The body should be warmly, but not over-clad. In winter heavy underwear should be worn, and the changes of temperature should be met with by thicker or thinner outer, rather than underclothing. For underwear woolen fabrics are to be preferred to silk,

FIG. 2.



cotton, or other goods.

The feet should be kept warm by woolen socks in the case of weakly persons subject to colds. The shoes should be heavy and watertight. The light undergarments and thin-soled shoes worn by many ladies are a prolific source of catarrhal troubles. Retention of gar-

Spalding's "Chest Weight" Apparatus. ments in-doors should be strictly avoided, and when

riding in heated cars the outer-garment should be loosened. In summer, care should be taken not to remove the clothing when the body is heated and perspiring, and to avoid exposure to draughts.

A daily amount of exercise is also of importance

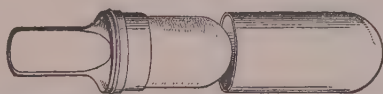
to catarrhal subjects. A brisk walk daily or horse-back riding is an excellent means of hardening the system and lessening the susceptibility to colds. The walk should not be prolonged sufficiently to produce fatigue, and even in cold weather out-door exercise should not be forgotten. Exercise in-doors with Indian clubs, dumb-bells, chest-weights, etc., preferably in the morning, is also useful, and during the cold season may take the place of out-door exercise. A chest weight apparatus, such as is shown in Fig. 2, will be found very beneficial to those unable to take much exercise. A half hour's instruction by some one familiar with the various exercises will be sufficient to acquire a knowledge of the manner of using the apparatus.

The proper heating of houses is a subject deserving the attention of those catarrhally inclined. Every house should be kept heated in winter at about 68° F. The best heating apparatus is a dry air furnace or a well ventilated stove; steam-heating is insufficient, as it keeps the rooms either too hot or too cold, the mechanism for regulating the heat being still rather rudimentary.

Medical Treatment.—It is sometimes possible to abort a commencing cold in the head by timely treatment. This may be accomplished in adults by a five to ten grain dose of quinine, or a five grain

dose of phenacetine, according to age and habit, taken best in a capsule at bed-time, together with a hot lemonade, to which whiskey, rock and rye, or rum may be added to suit the taste of the individual. Perspiration is thus induced, which should be increased by covering the patient with plenty of bed-clothes. A hot mustard foot-bath taken before retiring will also assist the action of the hot drinks. Care should be taken to have the room properly warmed at a temperature of sixty-eight to seventy degrees. If headache follows the development of acute catarrh, a five grain phenacetine powder or a phenacetine and salol tablet, two and one-half grains of each, should be taken and repeated every three hours if the pain is not relieved. In addition to the phenacetine, a menthol cone may be applied to the forehead,

FIG. 3.



Menthol Cone—Nickel Case; large size

FIG. 4.



Menthol Cone—Aluminium Case; small size.

Together with the above measures it is necessary to treat the nose. For this purpose the menthol

snuff powder given below is of much benefit, diminishing the discharge of mucus from the nose, stopping the sneezing and relieving the pain and fullness in the head. This powder may be either directly snuffed from the fingers like tobacco snuff, or better still, should be introduced by a small powder blower, of which the one illustrated is the most practical and convenient.

FIG. 5.



**Pocket Powder
Blower, three-quar-
ters actual size.**

This little apparatus can be carried in the vest pocket and contains a sufficient supply of powder for a number of days.

The menthol powder can be prepared by every druggist after the following formula :

Borax.....	two parts ;
Menthol.....	one part ;
Bismuth Subnitrate..	one part ;
Starch Powder... ..	twenty parts.

As a substitute for the snuff powder, a simple but less effective means is to saturate a small piece of cotton with the following solution and introduce it into the nose :

Menthol.....	one part ;
Benzoinol or Liquid Vaseline....	thirty parts.

If desired, this solution may also be applied by means of a camel's hair brush, or the spray mentioned on page 27, which, like the powder blower, can be carried in the pocket. This is the smallest atomizer made, and yet it furnishes a spray powerful enough for the treatment of all nose and throat affections. While fully as effective as the cumbersome sprays, it has the decided advantage that it can be conveniently carried in the vest pocket, and is always at hand.

The use of a menthol pocket inhaler, such as is figured below, will sometimes relieve the discomfort if the nose is not too much stopped up.

FIG. 6.



Cushman's Menthol Inhaler—The Conical End to be Inserted in the Nostrils.

FIG. 7.



If the nostrils remain plugged up, the snuffing of powder, spraying or inhalation should be repeated

every hour or even half hour. A good plan is to medicate the air of the bedroom by placing ten to twenty grains of menthol in a saucer and heating it over a gas flame or an alcohol lamp.

The above treatment should be kept up during the following days, using the menthol less frequently as the cold disappears. It is necessary to again emphasize the point that proper clothing should be worn, the feet kept warm, the bowels kept open, and that alcoholic beverages should not be used except as directed at the beginning of the cold. A light but substantial diet is recommended. If the person is much run down it is well for some time to build up the general health, as otherwise the catarrh persists longer, or is apt to return within a short period. For this purpose, either Trommer's extract of malt with iron and quinine, one teaspoonful three times a day, Fellow's syrup of hypophosphites, or cod liver oil, pure or in emulsion, should be taken for some time after the trouble has disappeared.

In *children* and *infants* the manner of treating a cold in the head should be somewhat different from that described above. The menthol snuff is not required, and the main object should be to thoroughly cleanse the nostrils. This may be accomplished by means of a spoon, or the nasal cup described in the chapter on chronic catarrh, in which

is placed warm water containing a small pinch of table salt, borax, chlorate of potash or bicarbonate of soda, or one of Seiler's tablets. The nose should be cleansed in this way every three or four hours, the child being kept warm and in-doors. An excellent remedy for infants is to blow into the nose by means of a quill or powder blower of the following powder :

Finely Powdered Sugar.....	} equal parts.
“ Powdered Camphor...	

One or two applications of this powder will relieve the distressing choking feeling, which prevents the infant from sleeping and nursing. In place of this a bottle containing smelling salts or spirits of camphor may be held before the nose, but this is less effective than the powder. Price's glycerine, one quarter teaspoonful three or four times daily, is often of benefit. In older children quinine in small doses (two grains) twice daily is sometimes useful. If the child is debilitated or scrofulous, the use of pure cod liver oil or some good emulsion, such as Scott's or Phillip's, will do much to break up the habit of catching cold.

If inflammation of the skin surrounding the nostril takes place owing to the irritating nasal discharges, the parts may be anointed with vaseline or cold cream, or if much soreness exists, with zinc

ointment. It is also a very good plan in children to apply vaseline to the outside of the nose, or goose grease, as German mother's do.

Chronic Catarrh of the Nose

(CHRONIC COLD IN THE HEAD.)

Chronic nasal catarrhs arise from acute catarrhs that have been neglected, and are a source of great discomfort and may even terminate in serious trouble to the respiratory organs. There are certain occupations which especially predispose to this affection, for instance, those which compel one to inhale poisoned vapors, arising from mercury, arsenic, bichromate of potash, fuming acids, etc. Workers in tobacco factories, cotton mills, needle factories, or those exposed to inhalation of irritating dust in other pursuits, are liable to this trouble. The conditions which are concerned in the causation of acute catarrh, such as wetting of the body, exposure to draughts, improper clothing, also apply to the chronic form of catarrh. Our variable climate, the sudden changes from summer heat to winter cold, sometimes within twenty-four hours, and frequently so unexpected that they cannot be guarded against by any method of dressing, are responsible for the frequency of acute catarrhal

troubles in this country. In this connection attention may be called to the common, but hazardous practice, of sleeping during the cold season of the year in rooms having a temperature thirty to fifty degrees lower than that in which the individual has been accustomed to during the day in business places, workshops, etc. It is scarcely necessary to point out that resting in bed clad in a thin gown with nothing to protect the body but the bed-clothes, and with the windows of the room open, is a wide departure from the condition existing during the day, when the person is clad in heavy garments and in a state of activity. Individuals past middle life having a gouty or rheumatic tendency are quite susceptible to chronic catarrhs, especially if disposed to corpulency and addicted to the pleasures of the table. Excessive use of tobacco or drinking of alcoholic beverages has the same influence. Scrofula and other debilitating diseases also predispose to chronic catarrh. The foundation of many catarrhs is laid in childhood. Mothers should be careful to prevent children from falling, for a fall on the nose, however trivial may seem the consequence, sometimes produces a bending or deflection of the septum, or partition-wall in the nose, which later becomes a cause of catarrhal trouble, inasmuch as the deflected septum blocks up the nasal passages,

gives rise to congestion and prevents proper respiration.

Symptoms.—Sufferers from chronic catarrh usually complain of a feeling of stuffiness and inability to breathe freely through the nose. There is dryness of the throat in the morning, and the voice is muffled, hoarse, and has a nasal twang. Throat complications are usually present, and occasionally the functions of hearing, smell and taste are impaired. Headache, lassitude and neuralgia sometimes exist. There is a watery, or thick, white or yellowish discharge from the nostrils, the eyes are affected, and a thick discharge of mucus from the back of the nose into the throat is one of the most disagreeable symptoms. At times more or less odor is perceptible from the nose, and in some cases to which the term of ozæna, or stinking catarrh, has been applied, the odor is exceedingly offensive. In ozæna particularly, but also to some extent in other forms of chronic nasal catarrh, large crusts of dried matter and sometimes thin scales are formed, which adhere firmly and give rise to the disagreeable odor of the discharge. The constant hawking and attempt to clear the throat and nose, compelling the frequent use of handkerchiefs, is also very annoying to the sufferer and his surroundings.

Nose-bleeding is one of the most disagreeable

symptoms of catarrh, and is usually caused by the patient's attempt to tear off adherent scaly masses from the partition-wall of the nasal cavity, picking or blowing the nose hard. In children as well as in adults, ear complications are frequently found in consequence of the nasal cavities being stopped up, causing inflammation and obstruction of the tube passing from the back of the nose to the ear, and preventing the passage of air from the nose into the ear.

Treatment.—Owing to the many discomforts attending this affection the selection of a proper treatment is of the utmost importance. The three chief features in successful treatment are: Cleanliness, application of remedies to the nose, and attention to the general health.

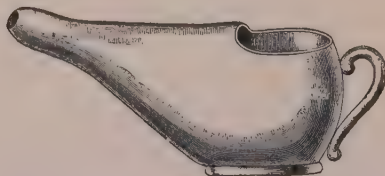
Cleanliness should be secured by the *proper* use of the douche. There are a large number of douches in the market, but experience has taught that they are more or less injurious, as they not infrequently give rise to trouble, which may go on even to loss of hearing. The only apparatus of this kind which can be highly recommended as safe and effective is what is known as the nasal douche cup, a description and illustration of which is given on the following page.

The cup is made of glass and has a nozzle which

fits into the nostril. In using it the following directions must be observed :

1. Fill the cup with the medicated luke-warm fluid, then throwing the head backward, insert the nozzle tightly into one nostril, and allow the contents to flow through the nasal passage. As soon as

FIG. 8.



The Author's Nasal Douche Cup.

the fluid is felt in the throat the head should be inclined forward and the mouth opened, causing the stream to return through the other nostril.

2. The nose should not be blown for at least five minutes after douching, in order to allow the fluid to act on the membrane.

3. It is not advisable to go out into the cold air immediately after douching.

4. During the use of the douche, sneezing, coughing or swallowing should be avoided.

5. Plain water should never be employed for douching.

6. The best results are obtained from douching two or three times daily.

7. The fluid should always be luke-warm.

8. At least one cupful should be used each time, but more can be employed when required.

We cannot too strongly emphasize the necessity of the nasal douche cup not only in the treatment of catarrhs, but in their prevention. It should be

FIG. 9.



Method of using the Nasal Cup.

borne in mind that cleansing the nose daily is as important an element for the maintenance of good health as cleansing the mouth and teeth. In describing the functions of the nose, it was stated that one of its chief actions was to filter the air passing

through it of particles of dust and dirt. This dust is apt to remain in the nasal cavities, and by combining with the mucus forms crusts, which cannot be thoroughly removed by means of the handkerchief, and frequently cause irritation and favor the development of catarrhs.

In affections of the nose the cup removes the mucus and pus over the entire extent of the nasal passages, and by relieving the membrane of irritat-

ing material places it in a condition to be more readily benefited by other applications to be mentioned later.

Now, a few words as to the medicated fluid to be used in the cup :

1. For ordinary cleansing purposes table-salt, bicarbonate of soda, or borax, one quarter to a half teaspoonful in a nasal cupful of water.

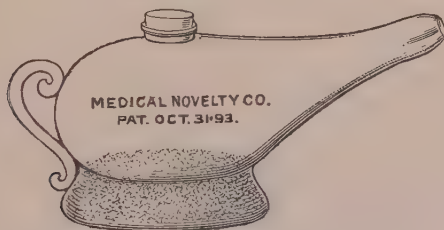
2. In case of odor from the nose, add from three to five drops of carbolic acid to above (stir well).

3. If many crusts and thick matter are present in the nose Seiler's solution, two teaspoonfuls to a nasal douche cupful of water, or one of Seiler's tablets to the same quantity.

Since writing the above a modified nasal cup, called the medicated nasal cup, has been brought to my attention, which possesses great advantages over the original device and may be considered a distinct improvement. Its principal advantage is that the bottom of the cup is coated with a layer of alkaline and antiseptic material, so prepared that on addition of water it dissolves slowly, but in sufficient quantity to furnish an effective medicated fluid for cleansing and curative purposes. It is claimed that the medicated cup may be used constantly for a period of two months or more without losing its virtues. This little device seems very practical,

since it does away with the necessity for preparing the solutions, is less expensive, and more convenient. Figure 10 affords a good idea of this useful apparatus, which should be employed in the same manner

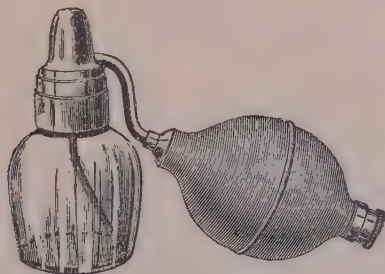
FIG. 10.



The Medicated Nasal Cup.

as the author's cup. We have been informed that the medicated coating of the cup approximates to Seiler's formula with some distinct improvements.

FIG. 11

Delano Liquid Vaseline or Alboline
Spray.

Application of Local Remedies.—If great dryness exists in the nose a spray of liquid vaseline or ben-

zoinol should be employed night and morning, and if the nose is much stopped up, 15 grains menthol to an ounce of either of the above oils will afford prompt relief. In cases where these remedies are not sufficient, the glycerole of tannin may be applied to the interior of the nose with a camel's hair brush at night-time after the douching.

FIG. 12.



Camel's Hair Brushes for applications to the nose.

Attention to the General Health.—The remarks made on this subject in the chapter on acute catarrh, apply with even more force to the prevention and treatment of the chronic form. Proper clothing, sufficient exercise, cold baths are particularly indicated here, inasmuch as they harden the system and act as an excellent tonic. Remedies such as cod liver oil, malt extract, malt with iron and quinine, or syrup of hypophosphites are beneficial. Tablets or pills of iron, quinine and strychnine are convenient to carry around and a good tonic, one to be taken after each meal for two or three months.

Foreign Bodies in the Nose.

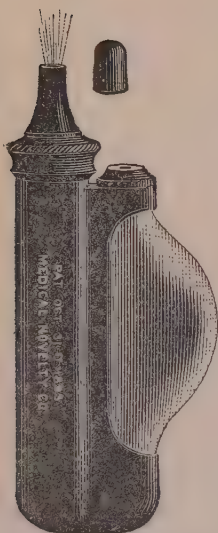
Mischievous children not infrequently introduce foreign bodies, such as shoe-buttons, beans, pebbles, into the nose, and insects, and even maggots have been known to lodge in the nasal passages. During the act of vomiting fragments of food may also find their way into the nose from behind. Unless such a foreign body is promptly removed, it may become a source of much disturbance, keeping up an ill-smelling and even bloody discharge from the nose and giving rise to inflammation. It quite frequently happens that the foreign body becomes concealed, and although the cause of much mischief it may be entirely overlooked for a time. To effect its removal shortly after its introduction one of the following means may be tried, with the reservation that if they fail, a physician should be at once consulted. Sneezing may be induced by means of snuff or a little pepper, the opposite nostril being held closed with the finger, or the mother may blow into the opposite nostril or the mouth of the child, or the nose may be douched with luke-warm water containing a little salt.

Nose Bleeding.

The subject of nose-bleeding has already been alluded to in the chapter on chronic catarrh of the nose, but in view of its importance demands further discussion. Nose-bleeding may be due to blows or falls on the nose, the inhalation of irritating gases or powders, abrasion of the lining membrane of the nose by the finger-nails. It may also occur after mental excitement, during the climbing of high mountains, and in persons who are full-blooded or poor in blood, and those suffering from diseases of the heart, liver or kidneys. The most general causes, however, are blows, falls and catarrhal troubles. Whatever be the cause of the bleeding, it is of importance to check it promptly, as if neglected, it may become a source of great danger.

Treatment.—The best methods of treating this trouble, and which are within the reach of all, are as follows: A rough-and-ready measure is to place a plug of brown paper between the inner surface of the upper lip and the teeth, so as to compress the artery running to the nose, or a sponge dipped in cold water may be applied to the back of the neck or spine. Another remedy is to raise the arms with the head thrown back, or the feet may be placed in a hot mustard bath, so as to draw the blood downward from the head.

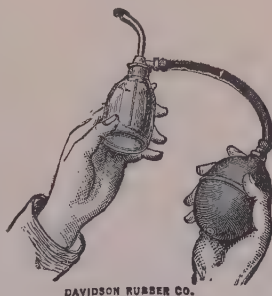
FIG. 13.

Novelty Pocket
Atomizer.

If these measures are unsuccessful in stopping the bleeding within a short time or if the above mentioned remedies are not at hand, the nostrils should be tightly plugged with borated absorbent cotton, a good-sized wad being introduced in each nostril, but not permitted to

If these means do not suffice to stop the bleeding, the following should be given a trial: Peroxide of hydrogen (Marchand's), which can be obtained of any druggist, should be snuffed up from the palm of the hand, or better still, introduced into the nose by means of some spray. If the pure peroxide of hydrogen be too strong and gives rise to a burning sensation, it should be diluted with equal parts of water. Creolin, from two to ten drops, in an ounce of hot water, is also an effective remedy which should be used in the same manner as the peroxide.

FIG. 14.



Hand Bulb Atomizer.

remain for more than twelve hours, when it should be changed if the bleeding continues. Should the plugs become saturated before the end of this time they should be removed and fresh ones inserted. In this way bleeding from the nose can be promptly and effectually arrested.

Hay Fever.

There is probably no disease which, while free from danger to life, is the source of so much annoyance and discomfort to its victims as the condition which has been designated as hay fever. This affection, which is due to inhalation of dust from various plants, probably owes its name to the observation among the people that it prevails especially at the time of hay-making. It should be borne in mind, however, that it is not only the pollen of grass, but the pollen of various flowers, such as the rose, and the pollen of rye, oats, barley, etc., which in persons predisposed is capable of bringing on an attack. Moreover, dust from various other sources, such as that stirred up in sweeping, or travelling, in shaking blankets, rugs, especially feather beds, or that originating from the emanations of animals, may act as exciting cause. A nervous tendency and chronic catarrhal troubles of the nose and throat are usually present in these cases, and seem to be important factors in the causa-

tion of hay fever. The largest proportion of cases occurs between the twentieth and thirtieth year and the smallest between the ages of one to ten years. Above the age of forty years the disease is found but rarely. Males are more frequently affected than females, and this is accounted for by the fact that the latter are less predisposed to nasal catarrh. There also seems to be a hereditary tendency to the disease, as in the case of asthma.

In the United States we meet with two distinct forms of hay-fever, the "rose cold" or "June cold," prevailing the early part of summer (May and June), which closely resembles the hay-fever of England and throughout Europe, the "autumnal catarrh," and which begins in August and lasts several weeks in the fall.

Symptoms.—It is very difficult to describe a typical case of hay-fever, since the symptoms differ widely in their character and severity. Usually some of the following symptoms are present in different combinations from the commencement: Loss of appetite, lassitude and mental depression, fullness and tightness across the bridge of the nose, accompanied by a good deal of sneezing, a burning and itching sensation about the nose, throat and eyes. The nasal passages feel more or less stopped up, but discharge large quantities of mucus, so that the handkerchief

has to be frequently used. In consequence of this the skin around the nostrils becomes red, painful and inflamed. Sometimes there is difficulty in breathing, as in asthma. In the majority of typical cases the disease begins the latter part of August and lasts until frost. There are usually some places in which the patient is exempt, although the same place is not suitable for every person. Although this affection is an exceedingly annoying one, the sufferer has the consolation of knowing that life is rarely shortened by it.

Treatment.—There are few maladies which are capable of being relieved so promptly by a comparatively slight change of residence as the one under discussion. Unlike malaria it does not follow the sufferer from place to place. The selection of a residence in which the person may dwell undisturbed by the affection must not be left blindly to his own judgment, although individual experience counts for much. It must be remembered that, inasmuch as the disease is excited by irritating material floating in the air, the patient should move to a place in which the atmosphere is as free as possible from these irritating substances. On the ocean hay fever does not exist, and hence a sea-trip, especially a trip to Europe where hay fever is infrequent, is always advisable. A general idea prevails that the mountains

are a safe refuge to sufferers from this affection on account of the purity of the air, but this should not be accepted without some reservation. In the selection of a mountainous region attention should not only be paid to elevation, but also to temperature, freedom from vegetation liable to excite the disease, moisture or dryness. If possible, the patient should remove to the mountains before the time of appearance of the attack. In the United States, with its wealth of mountainous regions, it should not be difficult for the sufferer to find a place exempt from the disease. The majority of cases find prompt relief in one of the following resorts :

1. White Mountains, especially Bethlehem, Jefferson, Glen and Twin Mountain House Regions.
2. Adirondacks.
3. The Alleghanies.
4. The Catskills.
5. Rocky Mountains.

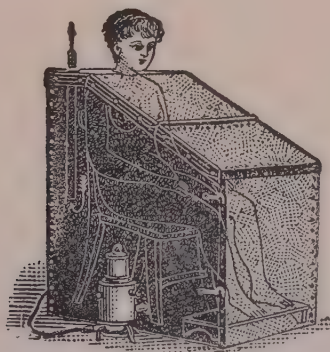
A residence at the sea-side frequently but not always ensures freedom from this trouble. Although while ocean breezes blow the patient may experience great relief, the shifting of the wind may bring with it irritating material from the land and excite an attack at a time when the patient congratulates himself that he has escaped. Islands some distance

from land, with very little vegetation, are much better than the sea-side.

The large number of persons, who are unable to seek refuge in places such as we have mentioned above, and are compelled to stay at home can, however, do much to relieve or even cure the malady. During an attack the diet should be nourishing and digestible, and the person should abstain from such articles of food and drink as are likely to produce indigestion, sleeplessness, or nervousness, such as over-indulgence in coffee, tea, alcohol, or tobacco, or partaking of greasy, over-seasoned food. If sleeplessness exists a bite of some light food, with a small amount of whiskey or malt beverages before retiring, will often enable the patient to enjoy a refreshing sleep. Out-door exercise should be resorted to sparingly, inasmuch as the sufferer feels indisposed to move about during an attack, and by remaining in the open air he is exposed the more to the exciting causes of the disease (dust, sun-light, etc). For these reasons rest in a darkened and closed room is highly to be recommended. Hay fever subjects should dress warmly at all seasons of the year, but should be particularly careful to avoid chilling the body during an attack. Plenty of sleep should be taken, because the nervous debility produced by loss of sleep tends to increase the severity and duration

of the disease. If the eyes are sensitive to light, green goggles should be worn. It has been claimed by some that growing a beard is of advantage in hay fever sufferers, for the reason that close shaving is said in some obscure way to irritate the nerves of the nose and eyes. One of the best means of strengthening the nervous system, and thereby diminishing the tendency to the attacks, is to apply cold to the spine in the morning for a short period (five to ten minutes), either by Chapman's ice bag, the douche,

FIG. 15.



Bath Cabinet (Mayor, Lane & Co.).

or by sitting in a bath tub and squeezing a sponge full of cold water over the back. A Turkish bath before or during an attack is to be employed in the case of persons upon whom the cold produces too much shock. If these baths are not convenient of

access, a hot bath improvised at home will practically produce the same effect, that is, profuse perspiration, which may be increased by wrapping the person in sufficient bed clothes. A good means of deriving the advantages of a Turkish bath at home is the use of the practical apparatus illustrated on page 33.

In travelling, a wet handkerchief may be held over the nose, or the nostrils may be plugged with pledgets of cotton saturated with menthol solution (see page 12). Steaming the nose over a bowl of hot water or milk, a shawl being thrown over the head, will often relieve the irritation. To the hot water may be added a teaspoonful of the following mixture:

Compound Tincture of Benzoin one ounce.

Menthol twenty grains.

The pocket powder blower, with the menthol powder described on page 12, will also be found of service. Dry camphor wrapped in a thin cloth and placed on the pillow at night has been highly recommended. If difficulty of breathing exists, the smoking of stramonium cigarettes (only two cigarettes to be smoked during the day), or the inhalation of the fumes of saltpeter paper burned in a saucer is of service. Inhaling hartshorn or spirits of camphor is found by some to be beneficial.

There is no drug which affords so much relief in cases of hay-fever as quinine. Persons who suffer yearly from the affection should take small doses of quinine, two to three grains three times daily, before the attack. During the attack the dose should be doubled and continued for two to four weeks. If deafness and noises in the ear occur the drug should be discontinued for a few days. In old cases, where quinine has not been of service, bromide of soda, five grains three times a day, should be employed. A Dover's powder, five grains at night, in the beginning of an attack, often gives relief. The nasal douche cup with Seiler's solution, or the medicated nasal douche cup, should be employed twice daily. If the patient is run down in health, a tonic is indicated (malt with iron and quinine, Weld's syrup of iron, etc.).

Influenza or la Grippe.

This affection has within the last two or three years prevailed so extensively in the United States, that the author believes that a brief description of its history, symptoms and treatment will prove of interest to the reader.

Although it is but recently that the disease has been brought prominently to our notice, it must not be thought that it is of modern origin, for according

to ancient records, it prevailed in the Grecian army as long ago as 415 B. C. Numerous epidemics resembling the influenza of modern times have visited Europe from time to time, and in 1647 we find the first records of the affection having prevailed in this country. In 1889 la grippe started in Russia, spread throughout Europe, and reached America at the close of that year. Since that time the affection has been prevalent to a greater or less extent every winter.

Although opinions differ as to the causation of the disease, yet it would seem that influenza is produced by a microbe floating in the air, and evidently brought from Europe. Whether it be contagious or not has not been positively proven.

Influenza is a catarrhal affection of the nose, throat, and respiratory organs, accompanied by depression of the nervous system and more or less fever. It has been named lightning catarrh from the fact that its development and spread are so rapid.

Symptoms.—The affection begins suddenly, or its onset may be preceded for a few days by general lassitude. The attack is ushered in by chilly feelings alternating with flushing. This is followed by catarrh of the nose, with sore throat, cough, headache, more or less fever, pain in the limbs, muscular weakness, and depression of spirits. The nose is

stuffed up and discharges considerable mucus, the eyes are watery, and frequently there is sneezing, while nose bleeding is not uncommon. If the disease runs a mild course it does not extend beyond the upper air passages, but in severe cases it affects the bronchial tubes and even the lungs, giving rise to bronchitis and pneumonia. In the epidemics of the past few years numerous cases have occurred in which the nervous symptoms are especially prominent. Severe pain is experienced in the back, hips and legs, and there is considerable prostration and mental depression. The catarrhal form lasts longer and is more distressing than the nervous form. One attack does not insure against another.

Treatment.—During the existence of an epidemic, attention should be paid to the general health by sufficient exercise, proper clothing, proper diet, keeping the bowels regular, avoiding ill-ventilated and crowded rooms. At the beginning la grippe should be treated like a severe attack of cold in the head, and the patient kept in bed. The fever and pains should be controlled by three grains of phenacetine and two grains of salol taken every two hours. A five-grain Dover's powder also acts well and insures sleep. Sponging the body with lukewarm water or vinegar and water relieves the burning of the skin and helps to reduce the fever. Hoffman's anodyne

in half teaspoonful doses every three or four hours greatly relieves the feeling of weakness and depression, and this may be further assisted by the moderate use of milk punches, hot whiskey, rum, or champagne. The bowels should be opened with a Seidlitz power, Rochelle salts, or bitter water. Cold cloths applied to the eyes greatly relieve the pain. If slight cough is present Stokes' cough mixture, one teaspoonful every two hours, will be found of service. The patient should not leave the bed too early, and during and for some time after convalescence, tonics, as recommended in previous chapters, should be taken.

If the nervous prostration is pronounced and high fever, decided cough, pains in the chest, and difficulty in breathing exist, no time should be lost in summoning medical aid.

THE MOUTH.

The mouth is the seat of many important functions. It is the organ of taste, speech and mastication, and serves as a channel through which enter not only food and drink, but also much of the inhaled air. The lining membrane of the mouth is continuous with that of the digestive and respiratory tract, so that affections of the mouth frequently give rise to trouble in other organs. It is for these reasons that a short description of its most important diseases has been given in this book. The cavity of the mouth is formed above by an arched plate of bone, called the hard palate, behind which is situated a fold of muscular fibres and mucous membrane termed the soft palate. The sides are formed by the cheeks which consist of skin, muscle and mucous membrane, between which are situated bloodvessels, nerves, and small bodies called mucous glands which pour their secretion into the mouth through minute openings.

The tongue lies at the bottom of the mouth and is composed chiefly of muscular tissue, covered by mucous membrane provided with glands which open on its surface. It is endowed not only with the senses of taste and touch, but also assists in mastication

and swallowing. By means of the sense of taste, we are enabled to recognize the quality of the food, while the sense of touch informs us of its consistence, size, form and temperature. The part played by the tongue in mastication consists in its collecting the food and keeping it between the teeth, and after it has been sufficiently masticated, of pushing it into the upper throat, whence by muscular contractions it is swallowed. The lips which guard the opening of the mouth in front are made up of muscle, lined by mucous membrane within and skin without. Opening into the interior of the mouth are the canals of three large glands which supply the bulk of the saliva. The chief function of the saliva is to lubricate the mouth and by moistening the food to enable it to be properly chewed and swallowed. Savory and spiced foods excite these glands and produce an increased flow of saliva.

The alveolar processes are plates of bone containing the sockets of the teeth and covered by a dense fibrous membrane called the gums. The first set of teeth, the temporary or milk teeth, begins to appear about the fifth month after birth. They make their way to the surface, not by a process of laceration (cutting the teeth), but by a process of gradual absorption of the overlying gums. When complete they number ten in the upper and ten in the lower

set, viz.: two central incisors, two lateral incisors, two canines, two first molars, and two second molars. At the sixth year the first of the permanent set, the sixth year molars, make their appearance, and the eruption of permanent teeth is not completed until the seventeenth year when the wisdom teeth are developed. The permanent teeth number thirty-two, viz.: two central incisors, two lateral incisors, two canines, two first and two second bicuspid, two first, two second, and two third molars in each jaw. A tooth consists of enamel, cement, dentine and dental pulp. The part above the gum is called the crown, the part fixed in the socket is the root, and the portion between the crown and the root is the neck. The enamel which covers the crown is the hardest tissue in the body. The cement covers the root of the tooth. Beneath these envelopes is found the dentine which makes up the bulk of the tooth. Hidden away in the centre of the tooth is the pulp, which is composed of a mass of bloodvessels and nerves held together by connective tissue. It is through the pulp that the dentine derives its nourishment, and if the pulp is once destroyed a change takes place in the structure of the tooth. A single aperture at the base of the root admits the nerve and vessel to the pulp, but aside from this opening the latter is entirely enveloped by dentine.

The Care and Treatment of the Mouth and Teeth.—

The condition of the mouth is to a certain extent an index of the general health of the body. A disordered state of the digestive tract frequently makes itself known by changes in the appearance of the tongue, or by disease of the membrane lining the gums and cheeks, while on the other hand decayed or ill cared for teeth are sometimes responsible for dyspepsia and other affections. In some constitutional diseases, also, such as the acute fevers, and in poisoning from mercury, lead, etc., the membrane of the mouth and the teeth are likewise affected.

The proper care of the mouth is a subject, the importance of which is not as well recognized as it should be. Cleanliness is absolutely essential. This may be promoted by gargling, mornings and evenings, with luke-warm water, or better still with the following: Listerine, one teaspoonful to a goblet of water, or permanganate of potash added until the water assumes a faint pinkish red color. These gargles can be strongly recommended, since they act as disinfectants, preventing fermentation and destroying germs which have gained access to the mouth. In infants or children who cannot gargle and have trouble with the mouth, the gums and surrounding parts should be cleansed after feeding,

either by means of a fine piece of linen dipped in water and borax (one teaspoonful to a glass), or by means of a camel's hair brush medicaments should be applied to the affected parts. All roughness should be avoided in these manipulations, as it may produce injury or inflammation of the delicate structures of the mouth.

A few words may be devoted with advantage to the care of the lips. They should be kept as clean as possible around the angles of the mouth, as they are very liable to eruptions. The lips, when exposed to cold or injury are very apt to become cracked or inflamed. If eruptions occur at the angles of the mouth, zinc salve or cold cream should be applied, or when they are chapped, plain glycerine or a lip salve, such as Roger's and Gallet's, will be found useful. The prolonged use of glycerine, however, frequently produces blanching and dulness of the lips.

The importance of systematic care of the teeth is frequently not appreciated until they are gone. It should be borne in mind that they are meant to masticate food and not to crack nuts or cut through hard substances, which wear away the enamel at points and permit the entrance of destructive germs. The use of very hot or cold foods and drinks, or sudden alternations of heat and cold are

apt to produce the same changes. Certain medicines, such as tincture of iron, or mineral waters containing iron, injure the teeth and therefore should always be taken through a glass tube. The foods harmful to the teeth are sugars and acid substances, as vinegar and lemons, if used excessively. It is a good plan to rinse the mouth after each meal, and to remove particles of food between the teeth with either wooden or quill tooth-picks. Metal tooth-picks should never be employed. Smoking, while it discolours the teeth, certainly does not predispose to their decay. The necessity of brushing the teeth is too well recognized to require more than mention. Too stiff a brush must not be employed as it irritates the gums, and before use it should be wetted and then dipped in some tooth powder or paste, amongst which are recommended Lyon's, Calder's or Sozodont. Systematic brushing of the teeth prevents the accumulation of tartar, which so often produces retraction of the gums and inflammation of the mouth. It cannot be urged too strongly that in case of decay of the teeth, accumulations of tartar, or inflammation of the gums, a dentist should be consulted.

Before and during the first teething, infants are liable to suffer from irritation of the gums, fever, peevishness, disordered digestion and sleeplessness.

These symptoms are often relieved by a warm bath (85 to 90° F.) which, if given before bed-time, usually produces a quiet sleep. Bromide of soda, one to two grains in a teaspoonful of sweetened water every two hours, assists the action of the bath. During this period care should be taken to avoid overfeeding. If the gums are tender, frequent applications of cold water should be made, to which may be added five or ten grains of bicarbonate of soda or borax to the ounce.

Great care should be taken of the teeth and a dentist occasionally consulted during the period of the second dentition, as much dental troubles in future life will thereby be avoided.

In persons suffering from dyspepsia, small and painful ulcers sometimes occur on the tip of the tongue, or a small crack may be found as the result of irritation from a tooth or artificial plate. These conditions are readily cured by regulation of the diet, laxatives, and some soothing gargle, such as borax, one teaspoonful to a goblet of water, or the glycerole of tannin may be applied with a camel's hair brush. If the ulcer or fissure persists, it should be painted with a solution of nitrate of silver, ten grains to the ounce.

For burns and scalds, stings and bites of the tongue, brushing with a mixture of borax, half a

teaspoonful to an ounce of honey, is efficacious. Sucking small lumps of ice is also grateful.

In young infants, the lining membrane of the mouth and the gums frequently become inflamed as the result of improper feeding, teething, trouble with the bowels, sucking and biting unclean materials, and general neglect to cleanse the mouth. In this affection the membrane of the mouth is red and shining, or small white canker sores appear on it and on the tongue, which are quite painful. This condition is readily cured by removing the cause and cleansing the mouth with a lotion of chlorate of potash or borax, half a teaspoonful to a glass of water. If the inflammation persist, the red patches and white spots should be brushed with sulphate of zinc, five to ten grain to the ounce. If the stomach is out of order the diet should be regulated; if constipation exists, a mild laxative, such as a knife-pointful of bicarbonate of soda and rhubarb, equal parts, or half a teaspoonful of compound liquorice powder, should be given at bed-time.

Inflammation of the mouth in adults is usually due to the irritation of sharp teeth, to the use of hot or highly seasoned foods, the over-use of tobacco or alcohol, especially in persons depreciated in health. The general treatment consists in regulating the diet, in removing constipation and dyspepsia, reducing

the amount of alcohol and tobacco, and extracting decayed and irritating teeth. A good remedy for curing, at the same time, the constipation and the stomach trouble, is the following mixture:

Powdered Rhubarb.....	forty grains.
Bicarbonate of Soda.....	one drachm.
Compound Tincture of Gentian	} one ounce
Peppermint Water.....	
	} of each.

One teaspoonful three times daily after meals.

One of the above mouth washes may be used in connection with this. If the gum is swollen and inflamed it should be brushed with glycerole of tannin or tincture of myrrh, twice daily, or better still is the application of a dental plaster, such as may be obtained from any apothecary.

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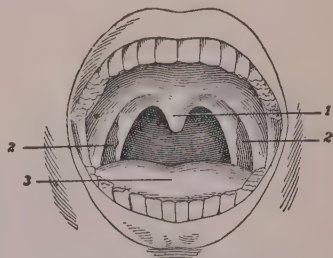
THE THROAT.

Structure and Function of the Pharynx.

The pharynx, or upper throat, is a cavity situated behind the mouth and communicating with it through an aperture called the isthmus of the fauces. Above it opens into the back portion of the nose, and below it is continuous with the gullet, and indirectly communicates with the larynx. The isthmus of the fauces is bounded above by the *soft palate*, which is a curtain of muscular fibres covered with membrane and attached to the back portion of the hard palate.

From the middle of the lower border of the soft palate hangs an elongated conical body called the *uvula*. On each side of the pharynx is situated a rounded mass called the *tonsil*, which is enclosed between two folds of muscle

FIG. 16.



1. Uvula ; 2. Tonsils ;
3. Tongue.

and membrane, given off from the soft palate, and termed the anterior and posterior pillars of the fauces. The pharynx is a tube through which

the food passes from the mouth to the gullet in the act of swallowing, and through which the air from the nose and mouth passes into the larynx. In swallowing, the food which has been reduced to a pulp by mastication is pushed back by muscular action, especially by the tongue, into the pharynx. Here it is grasped by the constrictor muscles and conveyed into the gullet, and from there by muscular action into the stomach. As the pharynx communicates both with the nose and the larynx, nature has provided the openings into these cavities with valves, which close at the time of swallowing so as to prevent the entrance of food into them. The valve protecting the orifice of the larynx is called the *epiglottis*, while the soft palate shuts off the opening from the pharynx into the nose. It will thus be seen that the pharynx performs a double function, acting not only as a food pipe but as an air conduit. In the chapter on the voice we will discuss the part which the pharynx performs in sound production.

Acute Pharyngitis.

(ACUTE SORE THROAT.)

By the term "pharyngitis" is meant an inflammation of the lining membrane of the upper throat (pharynx), including the soft palate and

uvula. If the inflammation extends upward to the back portion of the nose it is called a nasopharyngitis.

Causes.—The causes of acute sore throat may be any of the following: Extension downward of an acute catarrh of the nose, exposure to wet and cold, swallowing of very warm foods, fluids, or strong acids, disorders of digestion, etc. Persons leading a sedentary life, or addicted to the excessive use of tobacco, alcohol, or highly seasoned foods, and also those suffering from scrofula and debilitating diseases, are especially predisposed to this affection.

Symptoms.—The disease usually begins with more or less chilly feelings and general discomfort, a scratchy sensation in the throat and pain in swallowing. There is some loss of appetite, and mild fever may be present; sometimes the glands around the throat and under the jaw are more or less swollen and painful. In the course of a few hours the lining membrane of the throat, which at first was dry and raw, becomes moist, and a gradually increasing quantity of mucus and saliva is expectorated, because the patient avoids swallowing on account of the pain experienced. The tonsils at times become somewhat inflamed and swollen, and should hoarseness appear this will indicate that

the inflammation has extended down into the lower throat or larynx.

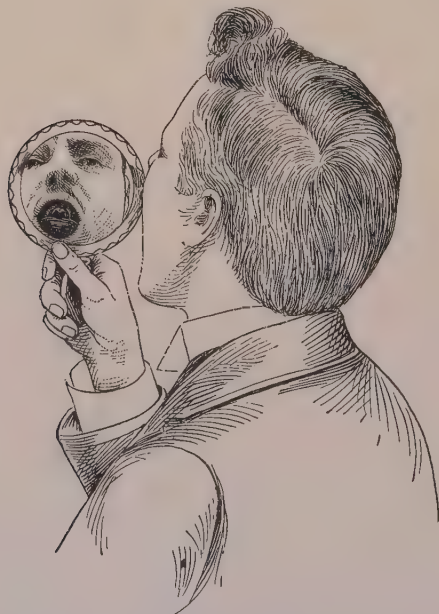
An examination of the throat should be made with care, as the parts are very sensitive when inflamed, and gagging is easily caused. In examining the throat of a child or adult a teaspoon is placed well back on the tongue and steady pressure made downward and forward, care being taken not to excite retching. In examining one's own throat the person stands with his back to the light, holding before the opened mouth a mirror which, properly manipulated, will throw the light into the throat and so form an image.

In acute pharyngitis we find on inspection that the soft palate, sides and back of the throat are red and swollen, the uvula is generally elongated and hangs down on the root of the tongue, keeping up irritation and frequently causing a tickling sensation, thus producing cough. Small bright red streaks, which are enlarged blood vessels, are sometimes observed, but should give no occasion for alarm.

Treatment.—A simple case of sore throat lasts a few days, and seldom gives rise to serious trouble. As already stated, the inflammation in rare instances extends down into the larynx, but this can usually be avoided by proper treatment. Like acute catarrh

of the nose acute sore throat is apt to return at intervals, and to prevent these recurrences the same precautionary measures should be observed which have already been spoken of in detail in the chapter

FIG. 17.



Manner of examining the upper throat.

on acute cold in the head (proper clothing, exercise, cold baths, etc). Aside from these precautions, a great deal may be done in the prevention of acute pharyngitis by systematic use of mouth-washes and gargles. For gargling it is advisable to add a tea-

spoonful of some non-irritating disinfectant solution, such as Listerine, to a tumblerful of water, which is to be used for cleansing the mouth in the morning. It is perhaps well to state here that, in gargling, the head should be thrown well back and a large mouthful of fluid allowed to flow down as far as possible without swallowing. So much for preventive treatment.

At the beginning of an attack of sore throat in adults gargles should be resorted to, of which the following will prove serviceable :

Alum.....	} one half teaspoonful of each.
Chlorate of Potash	
Glycerine.....	one tablespoonful.
Cold Water.....	one tumblerful.

This should be employed five or six times daily, a mouthful at a time. When a gargle fails to afford

FIG. 18.



Manner of using
the Spray.

sufficient relief, the following fluid may be employed in a spray apparatus such as is shown here :

Tincture of	} two teaspoonfuls.
Iron.....	
Glycerine....	one tablespoonful.
Water.....	two ounces.

This may be diluted if found too strong.

Compressed tablets of chlorate of potash may be used

during the intervals between spraying or gargling (five to six daily), being allowed to dissolve slowly in the mouth. If pain on swallowing is severe, small pellets of ice placed in the mouth will afford relief. A napkin, handkerchief, or towel wrung out in cold water should be wrapped around the neck and covered with flannel or oil silk. This application is to be renewed as soon as it becomes warm during the daytime, but can be left on unchanged during sleep. Food should be taken cold and not highly seasoned. Fluid foods, especially milk and beef extracts, are to be preferred for the first day. The temperature should be determined by a clinical thermometer introduced into the mouth; and in this connection it may be emphasized that a trustworthy thermometer, such as the one shown here,

FIG. 19.



Weinhagen's Clinical Thermometer.

should be found in every household. If the temperature registers above 100° F., five grains of phenacetine should be taken by adults every three hours, the patient remaining in-doors. Tonics are indicated after the attack is over if the health is run down.

In children, in place of gargles, the following mixture is to be given internally :

Chlorate of Potash....thirty grains.
Tincture of Iron.....two drachms.
Glycerine.....one-half ounce.
Water.....two ounces.

One teaspoonful three to four times a day.

Cold applications, cold fluid food, and small doses of phenacetine (1 to 3 grains) if fever exists, are indicated. In taking the temperature of children the thermometer should be placed in the arm-pit, or better still in the rectum. The child should remain in-doors, and if fever exists in bed.

Chronic Pharyngitis.

(CHRONIC SORE THROAT.)

Persons who have suffered from one or more attacks of acute pharyngitis which have not been properly cared for are apt to develop the chronic form of sore throat. The inhaling of impure or dusty air, living in badly ventilated rooms, alcoholism, excessive smoking, over-use of the voice, exposure to cold, gout and rheumatism, are also more or less concerned in the causation of chronic pharyngitis. Excessive smoking is so frequently a cause of this affection that it has been designated as

smokers' sore throat. Chronic pharyngitis is much more prevalent among men than women, and is seldom found in children.

Symptoms.—The disease manifests itself by a feeling of dryness, stiffness, and a tickling sensation in the throat, which causes spells of coughing. There is expectoration of thin or thick mucus, especially in the morning, which is sometimes expelled after prolonged hawking and becomes a source of much annoyance. The voice is more or less impaired; huskiness or hoarseness may be present, which becomes more pronounced in cases where the lower throat is also affected. On looking into the throat the posterior wall of the pharynx may appear either pale, dry and glistening in appearance, or red, inflamed and covered with sticky mucus. The latter condition is by far the most common.

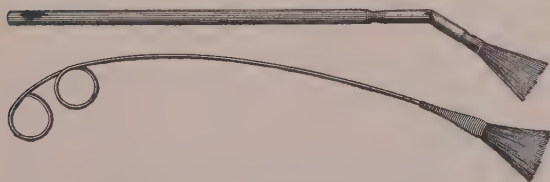
Treatment.—So many cases of chronic sore throat result from excessive smoking that a few words on this subject are appropriate here. It is always advisable for those suffering from this affection to give up or greatly curtail the use of tobacco. Moderate smokers may discontinue at once, while excessive smokers should cut down their supply gradually to two or three mild cigars or pipefuls of tobacco daily, preferably after meals (not, however, increasing the size of the cigar or pipe to compensate for

the decrease in number). It will be found that smoking a cigar after meals greatly diminishes its injurious and irritating effects on the throat. The use of cigarettes must be strongly interdicted, as cigarette smokers are apt to carry the habit to excess. The same preventive treatment as in acute sore throat is indicated here (baths, exercise, diet, etc.).

To relieve the distressing throat symptoms the application by means of a brush, as pictured here, of the following solution will be found useful:

Nitrate of Silver.....twenty grains.
Water.....one ounce.

FIG. 20.



Brushes for applications to the pharynx.

The throat should be thoroughly swabbed with this solution three times a week by the patient himself, or by some member of his family, and the applications continued for four or five weeks. To avoid vomiting it is advisable to make them before meals, or on an empty stomach. The brush should be

squeezed out before use to prevent some of the silver solution from dropping into the lower throat, as it may produce coughing.

The use of the nasal cup and attention to the nose, if catarrh be present, will greatly aid in the prevention and cure of this trouble. The chlorate of potash and alum gargle (page 53) will be found of service if much irritation of the throat exists. The addition of some harmless, non-irritating antiseptic to the mouth-wash in the morning is also to be recommended. In case of extreme dryness any one of the following lozenges may be employed: Licorice troches, Aubergier's lozenges of lactucarium, a French troche known as *pastille de reglisse*, or compressed chlorate of potash tablets. If huskiness be present one of the following lozenges will afford relief: Troches of benzoic acid, *krameria*, *rhatany*, tannin or *catechu*. Three to four lozenges should be used daily, being allowed to slowly dissolve in the mouth, and if one kind fails to relieve, another may be tried until the proper one is found.

In very nervous persons the discomfort caused by the chronic catarrh is much out of proportion to the severity of the disease. These individuals are frequently harassed by a distressing feeling of a lump in the throat, which causes constant efforts to swallow, while together with this there may be an irritable

hacking cough without expectoration. This is simply due to an over-sensitive condition of the lining membrane of the throat, dependent to a great extent upon a nervous debility. In this trouble much benefit results from a gargle of

Bromide of Potash....sixty grains.

Water.....one tumblerful.

One mouthful four or five times a day.

Tonics for the nervous system, such as iron, tablets of iron, quinine, and strychnine, coca wine (Mariani), extract of malt, etc., are useful. Attention should be paid in all cases of chronic sore throat to the condition of the stomach, bowels, and liver, by proper diet, and laxatives for existing constipation. In full-blooded persons who suffer from sluggishness of the bowels and biliousness a course of Carlsbad salts for three or four weeks is to be recommended. These salts should be taken in teaspoonful doses, dissolved in a tumblerful of warm water, an hour before breakfast, or in place of them one or two tumblerfuls of the Carlsbad water. The use of fruits, salads, vinegar, etc., should be avoided while taking the salts.

Diseases of the Tonsils.

Among the different diseases of the tonsils only those are discussed here which are most frequently

met with, and a knowledge of which may prove of advantage to the reader.

Enlarged Tonsils.

Enlargement of the tonsils often results from a hereditary tendency, and occurs more frequently in children than adults. It is also more common in males than in females. The development of large tonsils often dates from an attack of measles or scarlet fever. Although enlarged tonsils gradually decrease in size after the thirtieth year, the suffering and annoyance to which they give rise during childhood and youth should render them the subject of careful attention.

Symptoms.—Persons with enlarged tonsils breathe noisily and with mouth open; the expression is dull and vacant; the voice is thick and has a nasal twang. The ears may be affected and deafness be present. On examining the throat the tonsils are found to be very large, varying in size from a chestnut to a bantam's egg, and sometimes touching each other. Persons with this trouble sleep with mouth wide open, and frequently wake up gasping for breath. Aside from this, however, enlarged tonsils, especially in children, have an injurious effect on the general health. By preventing breathing through the nose they expose the patient to the irritating effects of the

cold and dusty air, which directly enters the lungs and may cause disease of the respiratory organs. By diminishing the air supply to the lungs they reduce the amount of oxygen taken up into the system, and thereby lead to impoverishment of the blood.

Treatment.—If the tonsils are not much enlarged and do not cause marked trouble, except some irritation, they may be reduced in size by means of various astringent preparations, of which one of the following is the best :

Tincture of Chloride of Iron....two teaspoonfuls.

Water.....one ounce.

This should be thoroughly painted over the surface of the tonsils with a brush once or twice a day.

In place of this the following powder may be applied to the tonsils by means of a powder blower.

Powdered Alum....	} equal parts.
Powdered Tannin....	

If the tonsils are of considerable size, the treatment recommended will not generally prove successful, and a physician should be consulted and the enlarged masses removed.

Tonsillitis.

By the term tonsillitis is understood an inflammation of the tonsils of an acute character. Several

varieties of this affection have been distinguished by medical writers, but it will be necessary to describe here only two classes of cases. 1st. Those in which the surface of the tonsil is affected (*follicular tonsillitis*). 2d. Those in which matter forms in the deeper parts of the tonsil, called *quinsy sore throat*.

Causes.—Tonsillitis is most common between the ages of fifteen and twenty-five years, rare in children before the fifth year, and is seldom met with in persons over fifty. Enlarged tonsils favor the occurrence of tonsillitis, and after one attack of the latter the person is more liable to others, usually occurring about the same time each year. Gout, rheumatism, or anything which impairs the general health, also predispose to this affection. The direct or exciting causes are generally exposure to cold and wet, inhalation of irritating gases, or swallowing of caustic substances. This trouble is most common during the spring and fall, especially during changeable weather.

Symptoms.—The symptoms of follicular tonsillitis and quinsy are much alike in the beginning, except that the latter is accompanied by higher fever, more pain and swelling, and usually is confined to one tonsil. Tonsillitis generally begins with chilly sensations, fever, general depression, stiffness and dry-

ness in the throat, and constant efforts at swallowing, which become more and more painful. These symptoms are most severe in persons suffering for the first time, and the fever may become quite high. On looking into the throat in a case of follicular tonsillitis one or both tonsils will be found swollen, and covered with spots of a whitish or yellowish color and of the size of a pin-head. The throat is also clogged with sticky mucus, which is expelled with difficulty. In quinsy sore throat, however, the swelling is confined to one side and is much greater, the white spots are fewer in number, and the parts surrounding the tonsil are inflamed over a wider area. The mouth can be opened only with much difficulty, the voice has a nasal twang, and the glands on the outside of the throat are somewhat swollen. When matter has formed the tonsil appears to be bulging, and shooting pains are felt in the head and frequently in the ear. Under proper treatment follicular tonsillitis usually gets well in three to four days, while quinsy may last for a week or two, or even longer.

Treatment.—In follicular tonsillitis of adults occurring periodically much can be done to cut short the attacks if recognized within the first twelve to twenty-four hours. The symptoms which should lead one to suspect that an attack is approaching

are pain and stiffness in the throat, chilly feelings, and general lassitude. Under these circumstances, five to ten grains of quinine with five grains of Dover's powder should be taken at bed-time, in connection with a hot mustard foot bath and hot drinks to produce sweating. The bowels should be opened by a five-grain blue mass pill followed in the morning by a glassful of Hunyadi, bitter water, or a Seidlitz powder. If the disease is already established the following treatment should be pursued: The tonsil should be painted once daily with a solution of nitrate of silver (twenty grains to the ounce of water) applied with the throat brush. The following gargle should be used in mouthfuls every half hour:

Ammoniated Tincture of Guaiac.....one teaspoonful.
Water.....one tumblerful.

Chlorate of potash lozenges will also be found of service. Cold applications should be made to the throat. A towel or handkerchief is wrung out in cold water and wrapped around the neck and covered either with a piece of flannel or oil silk. The cold cloths should be changed as soon as they become warm, but may be left on all night. If fever be present, five grains of phenacetine should be taken every hour, for three hours, and after the fever has left five grains mornings and evenings. Ten drops of tincture of iron in a wineglassful of water should

also be taken through a glass tube every two hours. It is scarcely necessary to say that if the patient is feverish he should remain in bed, or at any rate in-doors.

To children who cannot gargle, the so-called "yellow mixture" mentioned below should be given, and doses of two grains of phenacetine or quinine as directed above.

Chlorate of Potash.....thirty grains.
Tincture of Iron.....two drachms.
Glycerine....one-half ounce.
Water....two ounces.

One teaspoonful every two or three hours.

In quinsy sore-throat it is advisable to call in a physician immediately, but the above treatment may be employed until his arrival.

Structure and Function of the Larynx.

The structure of the larynx, or voice producing organ, is so complicated that a minute description would only confuse the reader, and for this reason we have confined ourselves to a general outline of its anatomy, especially of those parts which are chiefly concerned in voice production.

The larynx is a triangular box composed of a number of cartilages bound together by ligaments, or bands, and muscles. It is situated in front of the

gullet in the upper part of the neck, where it can be located by the prominence called Adam's apple. It communicates above with the pharynx, the aperture of communication being protected by a lid called the *epiglottis*, composed of cartilage and membrane, and capable of opening and closing involuntarily. Below it is continuous with the windpipe or trachea, which conveys air to the bronchial tubes and lungs. The framework of the larynx consists chiefly of three cartilages; the *thyroid*, a shield-shaped mass of gristle; the *cricoid*, which has the form of a seal-ring with the seal turned backward; and the two *arytenoid cartilages*, which have somewhat the shape of a pitcher. The latter are placed inside the larynx, and are freely movable on the cricoid cartilage. The interior of the larynx is lined by a delicate membrane continuous above with that of the pharynx, nose and mouth, and below with that of the windpipe or trachea and bronchial tubes. Stretched across the larynx are two white fibrous bands, the *vocal cords*, three-quarters of an inch in length in men, and one-half inch in women. They are attached in front and at the sides to the thyroid cartilage and behind to the tops of the arytenoid cartilages, meeting in front and separating behind, and thus leaving between them a triangular space called the *chink of the glottis*. Owing to their attachment to the very movable cartilages

behind they are capable of becoming tense or relaxed, and of swinging inward and outward. Above the vocal cords are situated two folds of muscular tissue covered with membrane called the *false cords*, which,

FIG. 21.



The interior of the larynx as seen with the Laryngoscope.

however, play no important part in the function of the larynx. A view of the interior of the larynx can be obtained by means of the laryngoscope, which consists of a small round mirror attached to a long handle. This is introduced into the upper throat below the soft palate, and a

bright light reflected from another mirror is thrown upon its surface, thereby forming an image of the larynx. The illustration affords a good idea of the picture thus obtained. This procedure, however simple it may appear, is extremely difficult, and requires both skill and great experience in its performance.

To obtain an intelligent idea of the function of the larynx it must be remembered that it is concerned both in phonation and respiration. It acts as an avenue through which the inspired and expired air passes to and from the lungs. The aperture of the larynx, or chink of the glottis, has not

inaptly been termed "the portal of the breath of life." During inspiration and expiration the vocal cords are separated by involuntary muscular action, permitting the air to enter and leave the lungs. In phonation, however, certain changes take place in the position and tension of the cords which will now be briefly described.

A good idea of the action of the larynx in sound production can be obtained by tightly stretching two bands of thin rubber across the narrow end of a funnel, leaving a very narrow space between them; then by a rapid series of blasts of air into the expanded end of the funnel the edges of the bands are set in vibration and sounds produced. In this rude sketch the mouth of the funnel represents the air reservoir, or lungs, the pipe the trachea, and its upper end the larynx, in which are situated the vocal cords. The sounds produced by the vibration of the vocal cords constitute the voice, which, when modified and altered by the action of the soft palate, tongue, cheek, lips and teeth, is developed into articulate speech. Man alone of all animals possesses the power of speech—that is, the ability to produce sounds to express ideas. Many of the lower animals emit sounds which, though not speech, represent probably a rudimentary method of communicating with one another.

In the study of the voice we must distinguish pitch, intensity, and quality. *Pitch* is the measure of the number of vibrations of the vocal cords in a given time. The size of the larynx and the length of the cords are in direct ratio to the pitch. The larger the larynx and the longer the cords the lower will be the pitch, and for this reason male voices are much lower pitched than female. At about the age of sixteen and seventeen years a boy's voice breaks, becoming an octave lower in pitch, while a similar, though much less marked change is observed in girls. The *intensity* of the voice depends upon the volume of air forced through the opening of the larynx. The *timbre* is that peculiar quality of the voice which is dependent upon the construction of each individual larynx, pharynx and nose.

The singing voice is the production of the tones of the musical scale by the larynx. In children there is no difference in the singing voice, but in adults women take a note an octave higher than men. Differences in pitch in men are expressed by the terms tenor, baritone, and bass; in women by the terms soprano, mezzo-soprano, and contralto. The range of the average singing voice is about two octaves.

The compass of the singing voice is designated either as chest, middle or head register, according

to whether it is produced from the chest, the mouth, or the cavities of the head.

In the cultivation of the voice it is necessary first and above all that the person should have a good musical ear. The ear governs the voice, and whatever the ear demands the voice endeavors to fulfil. If the ear is not sensitive to the finer modulations of sound, the voice, however rich and powerful it may be, is incapable of producing true musical tones. Nature has bestowed this great gift, a musical ear, upon but a few, and its possession is not dependent upon the culture of the voice. It is a well known fact that persons who have had no musical training whatever are frequently endowed with an exquisite perception of discriminating between the different tones. Some people have no ear for pitch, others none for melody, and still others are devoid of the sense of rythm and cannot distinguish a march from a waltz. Then there is another group of persons who, while able to recognize the faults of others, are unable to detect errors in pitch and quality of their own voices. In oratory the possession of a musical ear, though not as essential as in singing, is nevertheless a valuable auxiliary. While it is true that an intelligent audience is chiefly interested in the matter of the discourse, the speaker with a musical ear appeals

more directly to the sympathies of his hearers. Next to a musical ear the second requisite in voice culture is that the individual should be endowed with a good vocal organ, or larynx. Nature has not been lavish in the distribution of extraordinary vocal talent, as illustrated by the small proportion of great singers. But although few persons are endowed with the highest type of the singing voice, there are many who possess a musical ear and whose voices, although weak, are still capable of being trained and becoming a source of pleasure to themselves and others. The chief point is to determine accurately the capacity of the voice and then to cultivate it in an intelligent manner.

Hints to Vocalists and Public Speakers.

To insure a healthy condition of the vocal organs strict attention should be paid to the general health, for anything that tends to reduce the vital powers is also likely to impair the quality and strength of the voice.

The question of air is of great importance to those who use the voice in their vocation. As vocalists are so often exposed to the foul, dusty and draughty atmosphere of theatres, concert halls, and to the hot and close air of crowded drawing-rooms, it is of the

utmost importance that they should live in apartments which are properly ventilated, and the atmosphere of which is pure and of the right temperature. Care should be taken not to venture into the open air too soon after prolonged singing, but at other times out-door exercise is beneficial to vocalists. Any kind of physical exercise, such as walking, horseback riding, rowing, gymnastics, fencing, etc., if not overdone serves to tone up the general health and thereby strengthen the voice. During the singing season exercise should never be practised to the point of producing fatigue, while during vacation a tour through the mountains or a sojourn at the seaside is of great advantage. Cold sponge baths in the morning, followed by friction, as described in the chapter on nasal catarrh, serve to invigorate the system. The frequent use of Turkish baths, however, should be avoided, as they are apt to produce too much reaction and congestion of the vocal organs. The question of clothing is of great importance. During the cold weather the body should be protected by warm wraps, especially in returning to the house after a concert, sermon or lecture, or when riding in the open air.

The diet of vocalists should be digestible, substantial and nutritious. Fancy dishes, rich sauces and pastries should be avoided, as well as over-

indulgence in alcoholic drinks, tea and coffee. It is advisable not to exert the voice in singing or speaking for two or three hours after eating, and the heartiest meal should be taken after the performance. A good plan is to have the meal consist of one course, such as meat, vegetables, bread, and some dry wine, for in this way overloading of the stomach is prevented. Although it is generally true that tobacco smoking is injurious to the upper air passages, there are some people who are able to exert their vocal powers to the best advantage after a mild cigar. Cigarettes, however, are decidedly harmful.

A few words as to the time when vocalists should begin to train the voice are appropriate in this connection. As a rule, a girl can begin at an earlier age than a boy; the former at about fifteen, the latter at about twenty. Great care should be taken in the selection of a competent teacher, as much harm may result from improper instruction. Vocal exercise in the young should be resorted to only for about fifteen minutes to half an hour at a time. The nose and throat should be carefully examined, and any existing obstruction to nasal breathing or catarrhal trouble should be remedied. If the tonsils are large they should be removed.

It is hardly necessary to point out that vocalists should avoid overtaxing the vocal organs, as this is apt to cause throat trouble and impair the voice. When singers become hoarse either from catarrh or over-exertion, they should abstain from the use of the voice until the vocal organs have regained their normal condition. However, at times the voice becomes slightly husky, without any apparent cause, in which case, singing a few scales, or the use of a raw egg or a lemon before the performance will generally clear the throat. As a lubricant and tonic to the vocal organs any of the lozenges recommended in the chapter on diseases of the throat will be found of benefit.

A very good method of strengthening the throat and improving the quality of the voice is the following: Gargle the throat with equal parts of milk and Vichy, allowing the fluid to pass down the throat, and taking care to swallow as little as possible. This should be done four or five times daily, and will be found very beneficial by those whose voices are weak and easily fatigued.

It is also necessary to emphasize the fact that vocalists should not hamper the action of the chest muscles by tight clothing or corsets.

Acute Laryngitis.

(ACUTE INFLAMMATION OF THE LOWER THROAT.)

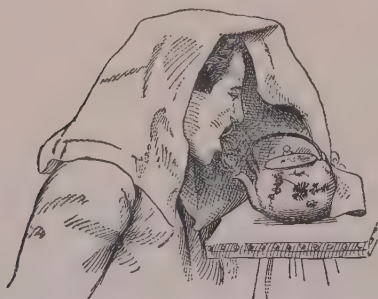
Laryngitis is an inflammation of the membrane lining the lower throat. The *acute* variety occurs both in children and adults. It generally affects only the surface of the membrane, and in that case the symptoms are usually slight; but if the inflammation spreads to the deeper parts the affection becomes more serious.

Causes.—In speaking of diseases of the nose attention was called to the fact that in a condition of health the nose serves to filter, moisten and warm the air before it passes to the lungs. If, however, the nasal passages become obstructed from disease this function is impaired, and the inhalation of cold and irritating air keeps up a state of constant irritation of the larynx, which in consequence of catching cold is converted into an acute inflammation. Acute laryngitis generally follows an acute catarrh of the nose and upper throat, and may complicate scarlet fever, measles, diphtheria, or may be due to the inhalation of irritating gases, tobacco smoke, prolonged use of the voice in singing and shouting, especially in the open air. Anything which depreciates the general health favors its occurrence.

Symptoms.—The symptoms consist in pain about the neck, a feeling as if a string were tied around the throat, hoarseness, sometimes going on to complete loss of voice, especially in those who have over-exerted their vocal organs. Cough which is sometimes present, is of a harsh, metallic character, and seldom attended with much expectoration. If the upper throat is also affected, pain in swallowing and sometimes fever exist.

Treatment.—In acute laryngitis the most serviceable medicaments are in the form of vapors. A large variety of apparatuses for generating vapors

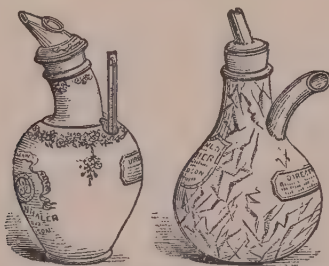
FIG. 22.



Method of inhaling from a tea-kettle. have been devised, but if they are not at hand the following methods will be found useful. An ordinary tea-kettle is half filled with boiling water, to which is added a teaspoonful of compound tincture of benzoin, or a teaspoonful of equal parts of oil of turpentine and oil of juniper. Throwing a towel over the head the patient seats himself a short distance from the spout of the kettle and inhales the steam in deep breaths.

The addition of five grains of menthol to a teaspoonful of either of the above remedies will increase their beneficial effects. Inhalations should be kept up for five minutes three times daily. Those subject to laryngitis, however, will find it more convenient to purchase one of the inhalers shown below.

FIG. 23.



Maw's Inhalers.

If coughing is produced during inhalation the procedure should be discontinued for a short time, when it may be resumed.

If a dry hacking cough be present a perforated zinc inhaler should be worn for half an hour to one hour during the daytime when at home, but may be left on all night. In the inhaler is a small sponge on which twenty drops of the following mixture is poured:

FIG. 24.



Robinson's Perforated Zinc Inhaler (Wyeth).

Creosote	fifteen drops.
Menthol	five grains.
Terebene	one ounce.

Cold applications, as advised in the chapter on pharyngitis, will be found of benefit.

If catarrh of the upper throat and nose be present, the gargles and measures recommended in the previous chapter will hasten the cure. Singers and vocalists should abstain from using the voice during an attack. As regards internal treatment, five grains of quinine morning and night, or tablets of phenacetine and salol, two and one-half grains of each, three to four times a day for several days, will often shorten the attack. Compressed tablets of chloride of ammonia, of which one may be taken as often as desired, frequently relieve the throat symptoms. The bowels should be kept open, and attention paid to the general health by the adoption of such hygienic measures as have been described in the preceding chapters. It should be remembered that frequent attacks of acute laryngitis may lead to bronchial troubles or to chronic inflammation of the throat, and hence the importance of their prevention.

Chronic Laryngitis.

(CHRONIC INFLAMMATION OF THE LOWER THROAT.)

This trouble is very common, especially in persons who use the voice in their vocation, and not only causes a great deal of annoyance, but may lead to serious impairment of the vocal organs.

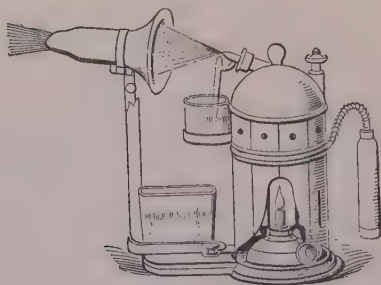
Causes.—As chronic inflammation of the lower throat usually follows a succession of acute attacks, the same causes are found to prevail here as in the acute form of laryngitis. Constant over-use of the voice, however, is so commonly concerned in its causation that it is also known under the name of *clergymen's sore throat*. Excessive indulgence in alcohol and tobacco, breathing impure and dust-laden air, a gouty or rheumatic tendency, all predispose to chronic laryngitis. Male adults are particularly susceptible to this disease, while children rarely suffer from it.

Symptoms.—Persons who do not use the voice to any extent in their vocation experience less discomfort than those who use their voice continuously. They complain of a tickling dry cough, constant desire to clear the throat, and more or less huskiness, especially on arising in the morning. In typical clergymen's sore throat, however, there is considerable impairment of the vocal powers, varying

from hoarseness to complete loss of voice. A peculiar feature of this affection is that the hoarseness is most pronounced after a period of rest, while after use of the voice for a short time it becomes much improved and sometimes even normal. If the person, however, continues speaking or singing, the hoarseness returns. Cough is usually frequent, but is little more than a hawking or hemming, and the expectoration is whitish, of a sticky consistency, and more or less abundant.

Treatment.—In cases of chronic laryngitis where over-use of the voice has been the cause of the trouble, rest of the vocal organs is of the greatest importance. If total rest cannot be kept up, the person should talk in a whisper as much as possible. The inhalation of medicated steam from a kettle, as described in acute laryngitis, is very useful, but of still greater service is the steam atomizer shown here.

FIG. 25.



Steam Atomizer.

The atomizer is placed on a table, and the patient seated in front of it. The vapor is then inhaled in deep breaths for about five minutes, discontinuing for a short time if dizziness or a coughing spell occurs, and this procedure is resorted to three times daily. The following solutions may be used in the cup of the atomizer: Tannin, three grains in an ounce of water; or alum, five grains in the same quantity of water. In cases where the huskiness and hoarseness persist a small faradic battery, as in illustration, may be employed once daily to tone up the muscles of the larynx. The electrodes are placed on each side of Adam's apple, and only a mild current used for three to five minutes. If the upper throat and nose are affected, they should be treated as described in previous chapters.

FIG. 26.



A handy form of Faradic Battery

If cough is present the perforated zinc inhaler (Fig. 24) will be found beneficial. For vocalists some form of chloride of ammonia inhaler is to be recommended, as it clears the voice, especially before speaking or singing. In the absence of this ap-

paratus sucking a lemon or a lozenge of tannin, rhatany or kino, will also have a good effect. Attention should be paid to the general health by proper clothing, baths, exercise, diet, tonics, etc. It need scarcely to be mentioned that the use of alcohol and tobacco should be restricted as much as possible, or better still abandoned.

Enlarged Glands of the Neck.

Enlargement of the glands under the jaw and along the sides of the neck is particularly prevalent in children of scrofulous tendency. It is usually due to some form of irritation, such as diseases of the nose, throat and ear, trouble with the teeth, salt rheum, or eczema, of the head and neck, etc. In scrofulous children these swollen glands frequently break down and discharge matter, leaving ugly scars; but if the child's health is not too much impaired they can often be made to disappear by proper treatment.

Treatment.—In the first place, the original cause of the trouble must be sought for and removed, and if throat, nose or ear affections, or decayed teeth, are present they should be treated in the manner described in different chapters of this book. To reduce the size of these glands and prevent their breaking down, one of the following ointments

should be rubbed in well over the affected parts twice or three times daily: Ointment of the iodide of lead, or equal parts of iodine and belladonna ointments. It is advisable to use only a small quantity of the salve at each application, not exceeding the size of a bean. Particular attention should be paid to improving the general health by giving the child half a teaspoonful of the syrup of the iodide of iron three times daily, with or without cod liver oil. The diet should be nutritious and digestible, and the child should be kept in the open air as much as possible.

Many children suffer from swelling of the small granular bodies which are situated at the back of the nose and in the upper throat. Children with this affection, which is called "adenoid growths," have a peculiar pinched expression, and usually keep their mouths open during breathing, especially at night. After the trouble has existed for some time, the general health becomes affected, and for this reason a specialist should be consulted for the removal of these swellings.

Mumps.

Mumps is a constitutional contagious trouble, in which the chief symptom is a swelling of the parotid gland, a large gland lying in front of the

ear. Mumps frequently occur in epidemics, and is especially spread among school children, although adults are occasionally attacked. The disease usually begins with slight fever, and the symptoms of an acute cold in the head, but soon the characteristic swelling of the gland makes its appearance. The swelling rapidly spreads downward toward the neck and under the jaw, and at times interferes with mastication and swallowing. Occasionally both sides are affected. There is usually some pain, and sometimes considerable disfigurement is present. If the proper treatment is employed the symptoms usually abate after four or five days, and the enlarged gland returns to its normal condition.

Treatment.—During the first few days, if the weather is disagreeable, the patient should remain in doors and be kept from contact with other children, as the disease is very contagious. Ordinarily it is sufficient to rub the gland with camphorated oil, and place over it a layer of cotton, securing this with a silk handkerchief or a light bandage around the head. If the swelling is very painful, a mixture of equal parts of belladonna salve and glycerine should be rubbed in two or three times daily, and a bandage applied as above. In case of sleeplessness five grains of bromide of soda should be given before bed-time. The bowels should be opened with a

mild laxative, preferably citrate of magnesia. The diet should be substantial, but light, and if pain on mastication exists milk or broth should be given.

False Croup.

This affection occurs chiefly in young children from a few months to three years old, especially those suffering from rickets, scrofula, and those of a nervous disposition. Boys are more often attacked than girls. Although dentition, weaning and trouble with the stomach and bowels are concerned, more or less, in the causation of false croup, the exciting cause is usually an irritation of the membrane of the larynx due to catching cold.

Symptoms.—The characteristic feature of this affection is a spasm of the muscles of the larynx, which usually appears at night after the child has gone to sleep. Sometimes the attack has been preceded by a mild sore throat or cough, and slight disturbance of the general health. At midnight or later the little one awakes with a choking sensation and a peculiar whistling or crowing breathing. The lips become blue, the eyes prominent; the body is bathed in perspiration; the voice is husky, and there is present a peculiar barking cough. In a few minutes the seizure passes off, and the little sufferer, who has been badly frightened, falls asleep exhausted. A

second attack may occur the same night, but usually is not repeated until the following night, while during the day the child seems quite well. The second seizure is lighter than the first, and is sometimes followed by a third, which usually ends the trouble for the time.

This condition must not be mistaken for true croup, which is a serious disease, attended with high fever, great prostration, and does not occur in attacks which rapidly pass off and leave the child in comparatively good health.

Treatment.—The chief indication is to promptly relieve the spasm. This can be accomplished by placing cloths dipped in cold water and then wrung out around the neck, and by giving an emetic, such as a half a teaspoonful of the syrup of ipecac, until vomiting is produced. If a spasm persists, the child should be put in a bath of a temperature of 105 degrees Fahr., and cold cloths applied to the head. An excellent inhalation for children subject to these attacks is the following:—

Carbolic acid	} one ounce of each.
Eucalyptol	
Spirits of Turpentine.....	six ounces.

One teaspoonful of this mixture is added to a pint of water heated over an alcohol lamp, and the fumes allowed to fill the room. The bowels should be

kept open, and as these children are generally scrofulous and run down in health, cod liver oil and iron and Maltine should be administered.

Whooping Cough.

The name of this affection is derived from the peculiar cough which is one of its chief symptoms. It is a contagious condition of the mucous membrane of the respiratory tract, and occurs almost exclusively in children between the ages of six months and six years. One attack usually protects against others. It is now generally believed that the disease is produced by an organism which, however, has not as yet been discovered. It is most prevalent in spring and autumn and during cold and damp weather.

Symptoms.—There are three fairly well defined stages in the course of this disease. In the first stage there are symptoms of an acute cold in the nose and throat, sneezing, watery condition of the eyes, irritation of the throat, cough, and some fever, but nothing to indicate the development of whooping cough. After these symptoms have lasted from ten to fourteen days the disease enters upon the second stage, which lasts from thirty to sixty days. The catarrh now subsides, but the cough becomes more troublesome, and occurs both day and night in

seizures. These fits of coughing come on suddenly, and are preceded by a tickling in the throat and a feeling of nervousness and anxiety, which leads the child to cling to a chair or seek its mother for relief. Then follow in rapid succession paroxysms of sharp short cough, each of which terminates in a peculiar long-drawn inspiration or whoop. During the attack, which may last from fifteen seconds to one minute, the face becomes blue, the eyes protrude, and more or less mucus is coughed up or vomited. In the third stage, which lasts from one to three weeks, the cough becomes less frequent and loses the whooping character, and the child's health is gradually restored. It is observed, however, that in any subsequent cold from which the child may suffer the cough maintains still some of its former character, for which reason these colds have been regarded erroneously as a recurrence of whooping cough. While of itself not a serious disease, whooping cough may become so from the complications which may arise during its course, such as bronchitis, pneumonia, ear trouble, etc.

Treatment.—As whooping cough is contagious in all its stages, the patient should be isolated not only from other children, but also from adults who are likely to come in contact with them. If possible other children in the family should be sent away

until such a time when the cough and expectoration have ceased, as during this period the disease is more or less contagious. The expectoration should be collected in receptacles containing a solution of carbolic acid or chloride of lime, and the use of handkerchiefs should be avoided. Objects which have been in contact with whooping cough patients, such as bed-linen, towels, etc., should be cleansed in boiling water, and kept apart from the other wash.

As regards the medical treatment of whooping cough, a few general suggestions may be of interest, although we would advise that a physician be consulted as soon as possible, as many complications

FIG. 27.



are apt to arise. Inhalations of various medicaments are frequently of service, among the most useful of which are creosolene, employed in the apparatus shown here, and the following mixture:

Carbolic Acid.	} one ounce of each.
Eucalyptol . . .	
Spirits of Turpentine . . .	

A teaspoonful of this mixture is added to a pint of water, heated over an alcohol lamp, and the

fumes allowed to fill the room. This may be done three to four times daily.

So many remedies have been and are advocated in the treatment of whooping cough, that we will mention only a few of the many in general use. Bromide of soda may be given in three to five grain doses three to four times daily. Iodide of potash, two to three grains in a wineglassful of milk, three times daily, is also an excellent remedy. Tonics, such as cod liver oil, iron, quinine, malt, are required, and during convalescence a change of air is beneficial.

THE EAR.

It has well been said that "if the eye opens to us the rich treasures of the material universe, the ear does the same for the spiritual and intellectual. It is by the ear that the child first receives from his mother's lips an answer to those inquiries of curiosity which the objects perceived by the eye have raised. It is by the ear that he receives his first instruction, his knowledge of the laws of the world, and the God that made it. It is by the ear that we enter into living intercourse with other intellectual beings, and gain addition to our inward treasures. It is by the ear that the world of sound and harmony is opened to us, and feelings quickened in our hearts by the magic power of music."

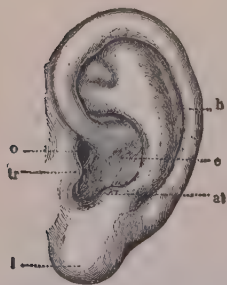
It is difficult to appreciate fully how precious are the benefits conferred on the human race by the sense of hearing until one has been deprived of them by disease, and for this reason affections of the ear must be viewed with concern, not only because of the deprivation of the many enjoyments which they entail, but also because of the influence on the entire character of the individual produced by a loss of this sense. To every person, therefore, it is of great

consequence to know something of the symptoms and treatment of diseases of the ear, so that they may be able in time to prevent the loss of so important a function.

Structure and Function of the Ear.

The human ear is divided into three parts, the outer, the middle, and the inner ear. The outer ear is composed of gristle, covered by skin, and is that portion which projects from the head. It is expanded and shell-shaped, in order to collect the sound and conduct it to the interior. The outer ear also includes a portion of the canal leading into the middle ear.

FIG. 28.

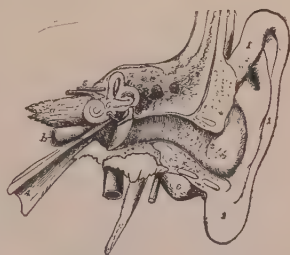


External Ear. h, helix; tr, tragus; at, anti-tragus; c, concha; l, lobe; o, external auditory canal.

This canal, called the auditory passage, is from three-quarters to one inch in length, funnel-shaped, and is closed within by a fine membrane, the drum-head, which divides the outer from the middle ear. In this canal, which is lined by skin, lie the glands supplying the ear wax which is useful as a lubricant. Behind the drum is situated the middle ear, or tympanic cavity, in which are contained a chain of three

small bones, the hammer, anvil and stirrup, hinged together so as to permit of motion, and attached in front to the centre of the drum. Communicating with the tympanic cavity is a tube coming from the back portion of the nose, supplying the cavity of the ear with air, to equalize the pressure of the atmosphere on both sides of the drum-membrane. It will be easily

FIG. 29.



Internal Ear. 1, external ear; 2, auditory canal; 3, chain of three small bones; 4, Eustachian tube; 5, auditory nerves; 6, semi-circular canals.

seen that if this tube is closed, as so often happens in catarrhal troubles of the nose and throat, the supply of air to the middle ear is cut off, in consequence of which the greater pressure of the outer air forces in the drum-head, thereby producing defective hearing. In the back portion of the cavity of the middle ear is an oval window closed by a membrane to which is attached the base of the stirrup. Back of this window is a series of circular canals excavated in the bone, lined with a delicate membrane richly supplied with nerves, and filled with a fluid. Owing to the many difficulties of understanding the minute arrangement of these intricate structures of the inner ear, experienced

even by a medical student, a detailed description of these parts is not called for.

The manner in which sounds are transmitted from the outer world to the inner recesses of the ear, and there converted into nervous impulses and telegraphed to the brain is, briefly, as follows: The vibrating sound-waves striking the shell-shaped lobe of the ear, are increased in intensity, owing to the grooves on its surface. Thence they are conducted through the external canal to the drum, which is very sensitive and set in vibration even by the slightest undulations of the atmosphere.

These vibrations of the drum are communicated through the medium of the chain of bones to the

FIG. 30.



Right and Left Ear-drum.

membrane closing the small oval window in the back of the tympanic cavity, through which in turn they are transmitted to the fluid in the canals, and finally to the small fibres of the nerve of hearing, and through these to the brain.

Causation of Ear Troubles.

If we bear in mind the exposed position of the ear and the delicate and intricate structure of its deeper parts, it will not excite surprise that it is so often

the seat of disease. But aside from these facts there are certain conditions which predispose to affections of this organ. Some of these are hereditary, such as deaf-mutism, deformities in the structure of the ear, or a tendency to catarrhal troubles, which may be transmitted directly from the parents to the children, or may skip a generation and affect the next. Children are more liable to ear trouble than adults. This is due, on the one hand, to the prevalence in childhood of diseases such as measles, scarlet fever, diphtheria, which are frequently attended with inflammation of the ear, and on the other hand, to the fact that, owing to the small size of the tube leading from the throat to the ear, it is apt to become stopped up. In old age there is again a tendency to ear troubles in consequence of the weak condition of the muscles around and along the tube, which disturbs the passage of air through it, and by producing inflammation with thickening of the drum-membrane, causes a loss of hearing. In the causation of ear troubles the condition of life and occupation of the individual also play an important part. The poor exposed to all kinds of weather, living in badly ventilated, damp dwellings, scrofulous, ill-fed and ill-clad; workmen laboring amidst dust, dirt, irritating gases, or engaged in occupations which expose the ears to violent noises, such as boiler-

makers, rivetters, engineers; persons addicted to the immoderate use of alcohol and tobacco, are especially susceptible to catarrhal troubles of the organ of hearing. As already mentioned, diseases of the nose and upper throat are among the chief causes of ear trouble. Injuries to the ear, caused by blows, introduction of foreign bodies, such as buttons, beans, tooth-picks, hair-pins, into the canal, are frequently the source of mischief.

Hints on the Care of the Ear.

Following the old and trite adage, that an ounce of prevention is worth a pound of cure, we give below a number of practical hints which, if followed, will insure a healthy condition of the organ of hearing.

1. It is of utmost importance that persons having a tendency to or suffering from ear trouble should keep the ears covered in very cold weather with either a cap, ear-laps or a plug of cotton. No better illustration of the truth of this statement can be afforded than the fact that women are less susceptible to ear affections because of the protection given by the head-dress and veils. Children should not be exposed to draughts and cold air, as in riding in cars with open windows or sleeping in draughty apartments.

2. The ears should be kept clean, but no forcible

efforts should be made, as is too often done, to attain this end. It should be remembered that a certain amount of wax is essential to the function of the ear, and the common practice of introducing such sharp-pointed instruments as tooth-picks, matches, hair-pins, cannot be too strongly reprehended, for aside from the danger of piercing the drum-head, their insertion may give rise to serious inflammation. Children's ears should be cleansed with a soft sponge, a soft towel, or fine linen, dipped in tepid water.

FIG. 31.



Ear Cleaner with Sponge attached.

And this applies equally to adults. If the ears are kept clean in the above manner, no trouble will be experienced from wax; but in cases where there is an unusual formation of this substance, the treatment described in another chapter should be resorted to.

3. Cold water entering the ear is always injurious. Bathing and diving in salt water, especially the surf, is very apt to cause inflammations of the ears, with discharge and earache, and should be practised with caution. Plugs of absorbent cotton

should be placed in the ear, or an oil-silk cap worn during bathing. Experienced swimmers should be particularly cautious to protect the ears from the pressure of the water while diving.

4. In the chapter on Diseases of the Nose, attention has been already drawn to the injurious effects on the ear of improper douching of the nasal passages, and it need only be repeated here that if a proper douche is selected and used in the prescribed manner, no harm can result.

5. It cannot be too strongly emphasized that the punishment indulged in by some parents of boxing or pulling the ears of children is capable of leading to serious mischief. Rupture of the drum membrane has been known to follow this reprehensible practice, and even permanent loss of hearing may occur.

6. Children of tender age should not be exposed to loud noises at close distances, such as the music of a brass band, the firing of guns, shouting in the ears—as is done by some mothers. It is a well-known fact that soldiers, especially artillery-men, sometimes suffer from deafness, which may be permanent, as well as from rupture of the drum-head, inflammatory trouble of the middle ear, hemorrhage, etc., in consequence of the loud report of the gun in close proximity to the ear. The continuous action

of noises on the ear, as in the case of engineers, machinists, blacksmiths, etc., has also been known to give rise to ear trouble ; and recently attention has been called to a variety of deafness met with in persons employed in the service of telephone companies, to which the name of "telephone deafness" has been applied.

7. The promiscuous introduction of oils, lard, etc., into the ear is not advisable, as they are apt to undergo decomposition and produce irritation. The same applies to the use of irritating lotions or too hot water.

8. Violent blowing of the nose, or closing up the nostrils tightly with the handkerchief while blowing or sneezing, should be avoided, as in doing this, air and mucus may be driven through the tube leading from the nose to the ear and cause inflammation. The proper way of blowing the nose is to hold the handkerchief at a short distance from it, taking care not to compress both nostrils.

9. Proper care of the teeth in infants is of importance in the prevention of ear troubles; and it should be remembered that during the period of teething such troubles not infrequently occur and demand strict attention. Badly cared for teeth in adults may also play a part in the causation of ear catarrhs.

10. In puncturing the lobe of the ear a perfectly

clean instrument should be used. To insure its cleanliness it should be placed for a short time in boiling water, or in a solution of carbolic acid (ten drops to an ounce of water). After the puncturing the wound should be thoroughly cleansed daily with borax and warm water (one teaspoonful to a goblet), and covered with zinc salve or carbolized vaseline. Too heavy ear ornaments should not be worn, as they pull down the ear lobe and may either cut their way through, or lead to inflammation or tumors.

11. Quinine or salicylates should not be used in too large doses (thirty to forty grains), as they may temporarily, and even permanently, impair the hearing, or give rise to disagreeable and distressing noises in the ears.

It is not within the scope of this work to give a full description of all the diseases of the ear, nor would this be desirable, since some of them can be treated only by the specialist. Our aim shall be rather to deal with those troubles which are most frequently met with and a proper understanding of which may prevent serious trouble.

Affections of the External Ear.

One of the common affections of the skin of the lobe of the ear and the external canal is *salt-rheum* or *eczema*, which occurs more often in females than

males. If of short duration, the skin will be found red, more or less swollen, and painful, the pain having a burning character. After a time a crop of small blisters appears, which are filled with a yellowish, and sometimes bloody fluid, which dries and forms crusts. If the disease is of long standing or has been left untreated, a larger area of skin will be affected and there will be more crusts or scales; sometimes a number of cracks or fissures are present which sometimes bleed and are very painful.

Treatment.— Washing with water or soap and water should be strictly avoided in acute eczema, as water increases the inflammation. The crusts should be removed and the parts cleansed daily with a wad of cotton or a piece of soft linen soaked in olive oil. The air should be excluded from the affected skin by dusting twice or thrice daily with the following powder, best applied with a camel's hair brush:

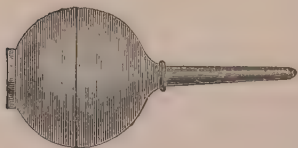
Finely Powdered Starch.....one part.

Powdered Oxide of Zinc.....two parts.

or some baby powder (such as Dr. Fehr's), plain zinc ointment, etc., may be used instead of the above. If great pain is present, pieces of lint dipped in lead and opium wash (such as may be obtained from any druggist) should be applied, until relief is experienced. In long-standing eczemas the ear canal is sometimes also implicated. To free the canal of

scales and relieve the itching, a douche of warm water, with or without castile soap, should be used

FIG. 32.



Small Bulb Syringe for
Douching the Ear.

above powders should be applied.

three times daily. At night lead or zinc salve spread on a piece of lint should be placed over the ear and secured by a bandage, while during the day one of the

Frost-Bites.

This trouble occurs especially in debilitated persons who have been exposed to severe cold. There is more or less redness and swelling of the parts, and ulcers or erysipelas occasionally appear. The treatment consists of gentle friction with snow or with the hand, so as to bring back the circulation, together with application of lead and opium as above mentioned, or painting with tincture of iodine.

Boils in the Ear Canal.

This painful affection is most frequently found in persons of poor health and dyspeptics. It is often caused by irritation of the canal with sharp-pointed bodies, or may occur during the course of or after an eczema. Usually there are several crops of boils,

and they may be present in other parts of the body. There is a feeling of fulness and hammering in the ear, worse at night, and more or less impairment of the hearing, depending on the size of the boil. The boil sometimes disappears without the formation of matter, but usually it ripens and bursts in the course of two or three days, when relief is at once felt.

Treatment.—Douche the ear with water, as hot as can be borne, three or four times a day, and apply a

Fig. 33.



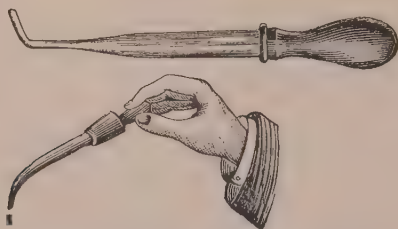
dry poultice of chamomile leaves sewed in a bag and heated over a stove, which should be changed as soon as it becomes cold. In place of the latter flax-seed poultices may be employed, or a hot-water bag, which has the advantage of retaining its heat for a long

time, and affords great comfort at night.

An old-fashioned, but excellent substitute for the poultice is the application at night to the ear of a peeled onion soaked in hot milk and covered with a cloth. In case of great pain, ten drops of a five per cent. solution of cocaine or five drops of laudanum may be poured into the ear with a warmed spoon or medicine dropper, and repeated every two to four hours until the pain is relieved. If sleeplessness is present, a fifteen grain powder of sulfonal may be adminis-

tered to adults in warm milk, one-half hour before retiring, while ten drops of paregoric may be given to children. To improve the general health, which

FIG. 34.



Medicine Dropper for the Ears.

is usually debilitated in sufferers from boils, a teaspoonful of syrup of the iodide of iron, in water, through a glass tube, or if preferred, a three to five grain Blaud pill may be taken after meals. Children are often benefited by cod-liver oil.

Wax in the Ear.

The ear-wax may be present in too great or small amount. Deficiency in wax is often found in persons whose skin is dry and hard, and in old people. It should be remembered, however, that this deficiency may be due to the washing away of the wax by discharges, or to constant attempts made to remove it. The opposite condition, or the excessive formation of wax, is much more common and important. It may

result from the excessive action of the glands, from irritation of the skin of the canal by inflammation or by mechanical violence with sharp-pointed implements, or from obstruction to the escape of the wax, as by too narrow a canal or the presence of bristly hairs at the entrance. Fastidious persons, in their efforts to remove every particle of wax from the ears, frequently bring about the very condition which they wish to avoid. The poking of the ear with tooth-picks, the end of a towel or a handkerchief rolled into a cone, etc., is an unnecessary and injurious refinement, as it tends to push the wax further into the canal up against the drum-membrane.

As the excessive formation of wax continues, it may collect into hard masses which fill up a portion or even the entire canal. This may produce itching, pain, a feeling of fulness, loss of hearing, noises and dizziness, so as to lead the patient to believe that he is suffering from a serious disease. These symptoms sometimes appear suddenly. After removal of the wax, however, in the manner described further on, complete relief is experienced.

Treatment.—Dryness and itching in the ear canal and deficiency of wax may be relieved by painting the canal with liquid vaseline, albolene or glycerine with a camel's hair brush, every morning and evening. A very convenient method of application is the use

of tubes containing boro-glycerine or emulsion of menthol.

FIG. 35.

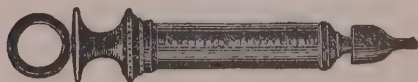


Tubes of Boro-Glycerine.

In employing these tubes the nozzle should be introduced into the ear and a little of the contents gently squeezed out.

Plugs of hard wax are best removed by means of injections of warm water with a syringe.

FIG. 36.

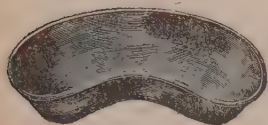


Hard-rubber Ear Syringe.

The syringe should be large enough to permit of the injection of a sufficient quantity of water (about three ounces); the nozzle should not be too pointed, so as to avoid injury to the canal. In syringing the person should be seated, a folded towel placed over the shoulder, and a basin directly under the ear. The basin shown is very convenient for that purpose,

although any bowl will answer. A study of the

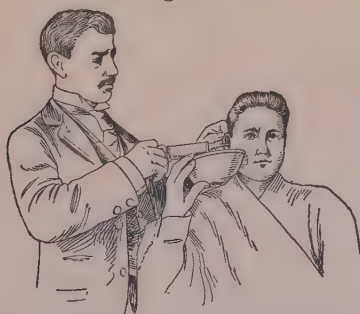
FIG. 37.



Ear Basin.

following illustration will show the proper method of using the syringe. The ear lobe is drawn backward and upward, and the nozzle of the syringe pointed toward the upper portion of the canal, so as to direct the stream of water to that surface which is least liable to be injured; but the nozzle should not be pressed too firmly. The water employed should be comfortably warm, and never cold, and should be gently injected. The syringing should be kept up until the water escaping is perfectly free from particles of wax, and this may require all the way from five to fifteen syringefuls. If the wax is very hard and not dislodged with water, the

Fig. 38.



Method of Syringing the Ear.

following mixture may be used, about ten drops

being introduced into the ear with a dropper previously warmed. This if done three times daily for a few days will soften the wax and enable it to be readily removed with the syringe.

Bicarbonate of Soda.....fifteen grains.

Glycerine } one-half ounce of each.

Water..... }

If dizziness is experienced during the syringing, it should be discontinued for a few minutes and then resumed. After syringing plugs of cotton should be placed in the ear for a day or two, so as to avoid cold.

Foreign Bodies and Insects in the Ear.

A large variety of substances, such as stones, pieces of bread, wads of paper, buttons, peas, beans, bits of slate pencil, glass or wood, etc., may find their way into the ear, and cause considerable trouble according to their size or shape. If large enough they may give rise to deafness, dizziness or pain, and if not removed marked irritation or even inflammation may result. In case the object be small, syringing with care, as described above, should be resorted to, a little alcohol being added to the water to prevent swelling of the canal. If it be large and visible, a brush dipped in glue should be applied

firmly to the object and allowed to dry, when it may be removed, bringing away the latter. If the object is a bean or pea which has become swollen, or is tightly fixed in the canal, or has sharp edges, it is better to waste no time in useless and dangerous efforts at extraction, but to promptly call in a physician. Live insects, such as flies, sometimes get into the ear, especially in persons living in the country, and give rise to a good deal of disturbance. According to the variety of the insect, it may produce simply a feeling as if something was moving in the ear, or cause disagreeable noises and even severe pain. As a relief to persons who have a superstitious dread of the earwig, believing that it will make its way into the brain, it may be stated that there is not a single instance on record in which this insect has produced serious trouble. Maggots are sometimes developed in the ear from eggs laid by the fly, and this happens especially in persons who have discharges from the ear. If leeches are applied close to the ear, care should be taken that one does not enter, as has been known to occur.

Treatment.—Syringing with warm water should always be tried first, but if the accident happens in the field a little water may simply be poured in the ear. If glycerine or any bland oil is at hand, it is well to introduce it in order to kill the insect before

the syringe is used. In case a leech enters the ear, an injection of salt water will dislodge the animal.

Diseases of the Middle and Internal Ear.

While we have described the affections of the external ear somewhat in detail because many of them can be relieved without resort to the physician, we will only briefly consider the affections of the middle and internal ear, since in consequence of their serious character they demand treatment by a specialist. The reason we have mentioned them at all is with the view of suggesting the manner of relieving some of the most *troublesome symptoms* until a physician has been consulted.

Earache.

In speaking of inflammations of the external ear, boils, etc., we have already mentioned the best means of relieving the pain in those affections. Pain should be regarded as due to disease of the middle and internal ear if there are no evidences of disease of the external ear, of boils, wax, foreign bodies, and if the patient has been exposed to cold, or is suffering from some general trouble in which the throat is affected, such as measles, scarlatina, or from simple catarrh. Earache from these causes can be relieved in the following manner: If there is severe throb-

bing pain, deep in the ear, two leeches should be applied, one in front of and the other immediately behind the ear, the opening being previously plugged with cotton. In children one will be sufficient. The leeches should be left on for at least ten minutes, or until they drop off, and the wounds covered with a piece of adhesive plaster. In case of bleeding, pressure made firmly will arrest it, or a wad of styptic cotton may be applied. Poultices of flax-seed, chamomile leaves, or application of hot-water bags, in connection with syringing with hot water and borax (one teaspoonful to the pint) employed three times daily, is an excellent means of alleviating the pain. Ten drops of the following mixture, heated and poured in the ear after syringing, will also aid in the relief of earache :

Borax.....	fifteen grains.
Cocaine.....	ten grains.
Water.....	one ounce.

Or a piece of cotton moistened with the following may be placed in the ear :

Liniment of Belladonna.....	} equal parts.
Liniment of Opium.....	

After the earache has ceased a piece of cotton should be worn in the ear. Absolute rest and quiet should be enjoined, and the bowels moved with a saline purge (as Rochelle salt, etc.).

Discharges from the Ear.

As already stated, a discharge from the ear is simply a symptom of ear trouble, and is usually due to inflammations of the middle ear, causing perforation of the drum-membrane and an escape of the matter through the external canal. This trouble is especially prevalent in children, particularly in those who are ill-nourished and scrofulous, during the period of teething. Catarrhs of the nose and throat, exposure to cold, scarlet fever and measles are also frequently attended with discharge from the ear. Before the appearance of the discharge, the patient may suffer from more or less pain, throbbing and fulness in the ear, with or without fever and general discomfort, although in children it is apt to appear quite suddenly and painlessly. The discharge is at first watery, but after a time becomes thicker, more yellow, and has a bad odor, especially if the ear is not thoroughly cleansed. It may continue for years and gradually lead to deafness, which may become permanent unless proper treatment is resorted to.

Treatment.—When pain is present, the treatment is the same as that given in the chapter on Ear-ache. Syringe the ear carefully three times daily with warm water and borax (one teaspoonful to a

goblet), then dry with absorbent cotton and introduce into the ear with a medicine dropper ten drops of a solution of one part hydrozone (Marchand's) in four parts of water. At night the following solution may be employed :

Borax.....	fifteen grains.
Sulphate of Zinc	one grain.
Water.....	one ounce.

Or in place of this borax finely powdered may be blown into the ear by means of a quill or a powder blower, such as is shown in the illustration. Absorbent cotton should always be placed in the ear after applications. In children, to improve the general health, the syrup of the iodide of iron should be given, fifteen drops three times daily, in water after meals, while adults are much benefited by cod-liver oil, extract of malt, iron and

FIG. 39.



Powder Blower.

quinine. If the discharge is very thick and difficult to remove by syringing, a little bicarbonate of soda (a knife-pointful) dissolved in a tablespoonful of warm water should be poured into the canal.

Noises in the Ear.

This very disagreeable condition results from the generation of sounds in the interior of the ear, independent of outside influences. These noises vary widely in character; they may resemble the splashing of water, the whistle of a locomotive, the singing of a kettle, the twittering of birds; they may be ringing, hissing, buzzing, cracking, etc., or a distinct, harmonious, musical sound may be perceived. They may be intermittent or constant, only ceasing with sleep. These noises may be due to wax in the ear, to diseases of the internal and middle ear, to diseases of the nose, throat, gums or teeth, to chilling of the body, or to nervousness and disorders of the stomach and liver. They are usually accompanied with more or less deafness; but sometimes very intense noises are attended with but slight deafness, and *vice versa*.

Treatment.—While the cure of noises in the ear cannot be accomplished without treatment of the diseases which have produced them, the patient has it in his power to greatly relieve this distressing symptom, and, in some instances, to remove it altogether. If wax is present in the canal it should be removed. The back of the ear should be rubbed with the following liniment three times a day:

Soap Liniment	} equal parts.
Camphor Liniment	

or with the following salve :

Blue Ointment	} equal parts.
Belladonna Ointment	

Bromide of potassium, fifteen to twenty grains in water, taken at bed-time, often aids in the relief of noises.

It is worthy of mention that noises are sometimes produced by the administration of quinine or salicylates. If they are very distressing dilute hydro-bromic acid in five-drop doses in water, three times daily, will afford relief.

The general health should be attended to, and if constipation and sluggishness of the liver exist, a mercurial purge, a dose of Rochelle salts or saline purgative water in the morning, is often of benefit.

Deafness.

Deafness is frequently associated with dumbness. Children who are born deaf, or who become deaf after birth from disease, are apt to remain dumb, because

FIG. 40.



London Horn.

deprived by loss of hearing of the ability to learn to speak. Under four years of age deafness is always followed by dumbness, and between the ages of four and eight years, unless the child is properly trained to read, or is above average intelligence, permanent dumbness is apt

to result. Deaf-mutism may not be inherited from the parents, but from some other member of the family. In children deafness, if not inherited, is due to various conditions, as diseases of the brain,

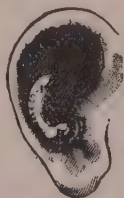
FIG. 41.



Hearing Trumpet.

injuries of the ear, affections of the internal ear, or mumps, scarlet fever, typhoid, measles, diphtheria, etc. The consequences of loss of hearing acquired in adult life are totally different from those entailed by deafness in childhood. An adult deprived of hearing is not cut off from social intercourse with the rest of the world. Aside from the fact that his knowledge of articulate speech is too deeply implanted in his memory to be forgotten, he has the advantage of being able to understand the speech of others by watching the movements of their lips, while his knowledge of reading and his ability to use certain apparatuses illustrated in this article also aid him in preserving the power of speech.

FIG. 42.



The Auricle in position.

Treatment.—There are many excellent institutions in almost every State of the Union where deaf-mutes are taught to read and speak, even though their

FIG. 43.



Auricles.

hearing is not restored. It is beyond the scope of this treatise to enter into the details of the methods of instruction pursued in these schools, which are deserving of the highest praise for the good work already accomplished. We would, however, call attention to the fact that perhaps in many of these cases of acquired deafness, sufficient importance is not bestowed upon the ear affections which have caused this condition. Discharges from the ear, catarrhal

FIG. 44.

Toynbee's Artificial
Drum-heads.

FIG. 45.



Audiphone and Manner of Employment.

troubles of the nose and throat, etc., should be carefully treated ; for by proper attention to these conditions a partial restoration of the hearing can sometimes be brought about.

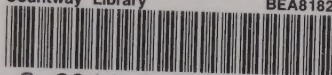
Thanks to the advances in our knowledge of acoustics, a number of apparatuses have been invented to enable those partially deaf to improve their hearing power. We have given illustrations of some of the most useful and practical of these instruments, although each should be thoroughly tested before purchasing, as not any one will be found suitable for every case. They may be obtained from instrument makers, opticians, etc.

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Home treatment for catarrhs and 1894

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